Release Document

# System Administrator's Manual

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If you have any comments to the contents of this manual or suggestions for topics to be included in a future updating of this manual, please do not hesitate to send them by mail to: SCDimension.doc@SimCorp.com.

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# Contents


1 About this Manual ..... 11
1.1 Manual Structure ..... 11
1.2 Examples ..... 12
1.3 Numbers and Dates ..... 12
1.4 APL or C# Based Windows ..... 12
1.5 The Database ..... 13
1.6 Referenced and Suggested Documentation ..... 14
1.7 Key to Support Matrix ..... 15
2 SimCorp Dimension Overview ..... 16
2.1 System Architecture ..... 16
2.1.1 SimCorp Dimension Set-up Example ..... 18
2.1.2 The SimCorp Dimension Portal ..... 19
2.1.3 System Options ..... 20
2.1.4 Reporting ..... 20
2.2 Database – Overview ..... 20
2.3 Data Access from outside SimCorp Dimension – Overview ..... 21
2.4 Support ..... 21
2.4.1 Incidents and Service Requests ..... 21
2.4.2 Operational Data Assistant Solution ..... 21
2.4.3 Support Discontinuation Schedule ..... 24
2.5 Third Party Software ..... 24
3 System Environment ..... 25
3.1 Technology Platform ..... 25
3.1.1 Platform Support Matrix ..... 25
3.1.2 Supported Operating Systems for SimCorp Dimension Elements ..... 27
3.1.3 Future Supported Third Party Software Versions ..... 27
3.1.4 Oracle RDBMS Patches ..... 28
3.1.5 Required Physical Memory Size ..... 29
3.1.6 64-bit Support ..... 30
3.1.7 Unicode Support ..... 31
3.1.8 Citrix XenApp and XenDesktop ..... 32
3.1.9 VMware ..... 33
3.1.10 Mail System ..... 34
3.1.11 Network Communication ..... 35
3.1.12 Printers ..... 35
3.2 Standard Requirements ..... 35

3.2.1 SimCorp Dimension Clients ..... 36
3.2.2 SimCorp Dimension Application Servers ..... 39
3.2.3 File Server ..... 41
3.2.4 Database Server ..... 42
3.3 Module Specific Requirements ..... 44
3.3.1 APTServerXml Interface ..... 44
3.3.2 Australian CGT Calculator ..... 45
3.3.3 BIRT Spreadsheet ..... 45
3.3.4 Crystal Reports Runtime ..... 45
3.3.5 FIX.NET Server ..... 45
3.3.6 SimCorp Dimension help system ..... 47
3.3.7 Order Manager ..... 47
3.3.8 Report Book Manager ..... 49
3.3.9 SCDDiff ..... 63
3.3.10 Time Zone Adjustment ..... 63
3.3.11 XpressInstruments ..... 64

**4 System Configuration ..... 65**

4.1 Technology Platform Configuration ..... 65
4.1.1 Mail System Configuration ..... 65
4.1.2 Microsoft Windows ..... 67
4.1.3 .NET Framework ..... 70
4.1.4 Oracle RDBMS ..... 75
4.2 Standard Configuration ..... 83
4.2.1 Configuration File ..... 84
4.2.2 Message and User Control System (MUCS) ..... 98
4.2.3 Communication Server ..... 98
4.2.4 Service Host Server ..... 99
4.2.5 Service Agent ..... 102
4.2.6 Data Extractor ..... 103
4.2.7 Oracle Active Data Guard ..... 105
4.2.8 Local Time in Global Environments ..... 105
4.3 Module Specific Configuration ..... 108
4.3.1 Crystal Reports Runtime ..... 108
4.3.2 Oracle Active Data Guard ..... 109
4.3.3 Order Manager ..... 109
4.3.4 Report Book Manager ..... 109

**5 Installation and Upgrade ..... 110**

5.1 Installation and Upgrade Considerations ..... 110
5.1.1 Oracle RDBMS ..... 110
5.1.2 SimCorp Dimension Services Using Local Installation ..... 111
5.1.3 Use of ROOT for File Placement ..... 111
5.2 SimCorp Dimension sessions ..... 112

5.2.1 Central Network Installation ..... 114
5.2.2 Local Installation ..... 114
5.3 Upgrading SimCorp Dimension ..... 115
5.3.1 Prerequisites for Upgrading to Version 5.4 ..... 115
5.3.2 System Alteration after Upgrade ..... 118
5.3.3 Test and Production Upgrade ..... 119
5.4 Applying Patches ..... 120
5.4.1 Prerequisites for Applying Patches ..... 121
5.4.2 Apply Patches Process ..... 121
5.4.3 After Applying Patches ..... 121
**6 System Operations ..... 122**
6.1 SimCorp Dimension installation Management ..... 122
6.1.1 Copying Data ..... 122
6.1.2 Deleting a Test Environment ..... 126
6.1.3 Partitioning ..... 127
6.1.4 Table Storage Customisation ..... 127
6.1.5 Cleanup Tasks ..... 128
6.1.6 Verify Database Privileges ..... 128
6.1.7 Verify Database Settings ..... 128
6.1.8 Verify Database Contents ..... 129
6.1.9 Verify Business Data ..... 130
6.1.10 Log File Management ..... 130
6.1.11 Moving the Folder Structure ..... 136
6.1.12 File Cleanup ..... 137
6.2 Security Management ..... 137
6.2.1 Operating System Authenticated Users ..... 137
6.2.2 Audit Trail ..... 137
6.2.3 Virus Scan ..... 138
6.2.4 Backup and Archiving ..... 138
6.3 Availability Management ..... 138
6.3.1 Single Point of Failure ..... 138
6.3.2 Monitoring the Infrastructure ..... 139
6.3.3 Monitoring Servers ..... 140
6.3.4 Metadata ..... 143
6.3.5 Strategy for handling Memory Shortage ..... 144
6.4 Performance Management ..... 144
6.4.1 STP and Reservation ..... 144
6.4.2 STP and the NOWAIT Option ..... 145
6.4.3 Server Polling ..... 145
6.4.4 System Runtime Measurements ..... 146
6.4.5 SRM Viewer ..... 146
6.5 User Management ..... 147

6.5.1 Overview of Design and Solution ..... 147
6.5.2 Unattended Logon ..... 148
6.5.3 Multiple Installations in the Same Database ..... 151
6.5.4 User Names and Passwords ..... 151
6.5.5 Auditing Database Logon Activity ..... 152
6.5.6 Troubleshooting Database Connectivity Issues ..... 154
6.5.7 Order Manager Users ..... 154
6.6 Distributed processing ..... 155
6.6.1 Batch ..... 155
6.6.2 Application Servers ..... 157
6.6.3 Server as a Windows Service ..... 162
6.6.4 Service Host ..... 166
6.6.5 Starting Batch Jobs or Servers from a Scheduler ..... 167
6.6.6 Returning Error Levels / Exit Codes ..... 168
6.6.7 MUCS ..... 168
6.7 Reporting ..... 171
6.7.1 Oracle Active Data Guard ..... 172

**7 Reference Information ..... 173**

7.1 Command Line Options ..... 173
7.1.1 scd.exe ..... 173
7.1.2 Batch Job Group ..... 179
7.1.3 SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE ..... 181
7.2 Error Levels / Exit Codes ..... 182
7.3 Codes in the Batch Log ..... 185
7.4 Configuration File Parameter Overview ..... 186
7.5 Disabled Menu Items in a Local Installation ..... 196
7.6 Partitions Overview ..... 197
7.6.1 Audit Trail & Four Eyes Principle ..... 197
7.6.2 Fund Accounting ..... 197
7.6.3 Market data ..... 198
7.6.4 Portfolio Calculations ..... 199
7.6.5 Unified Logging ..... 200
7.7 Folder Structure ..... 200
7.8 Folders ..... 201
7.8.1 The AddOns Folder ..... 201
7.8.2 The Bin Folder ..... 201
7.8.3 The Comsrv and Protected Folders ..... 202
7.8.4 The Data Folder ..... 202
7.8.5 The DevIML Folder ..... 202
7.8.6 The Doc Folder ..... 202
7.8.7 The HelpSystem Folder ..... 202

7.8.8 The Log Folder ..... 203
7.8.9 The Maintenance folder ..... 203
7.8.10 The Mediator Folder ..... 203
7.8.11 The OrderManager Folder ..... 203
7.8.12 The Patches Folder ..... 203
7.8.13 The Prog Folder ..... 203
7.8.14 The RConnect Folder ..... 204
7.8.15 The StdFilt, StdIML, StdRep, IML and Rep Folders ..... 204
7.8.16 The Tmp Folder ..... 204
7.8.17 The Transport Folder ..... 204
7.8.18 The TRD Folder ..... 204
7.8.19 The Upgrade Folder ..... 205
7.8.20 The Util Folder ..... 205
7.8.21 The Windows %TEMP% Folder ..... 205
7.9 Folder Permissions ..... 205
7.9.1 Permissions for All Users ..... 206
7.9.2 Permissions for Certain Users ..... 206
7.9.3 Grouped Permission Settings ..... 207
7.10 Log Files ..... 208
7.10.1 Application Log Files ..... 208
7.10.2 Installation/Upgrade Log Files ..... 209
7.10.3 SCD.LOG Entries Useful to Know ..... 210
7.11 User Privileges ..... 211
7.11.1 SCROLE Privileges ..... 211
7.11.2 SCDEXROLE Privileges ..... 212
7.11.3 SimCorp Dimension User Privileges ..... 212
7.11.4 SCDAT Privileges ..... 212
7.11.5 SCSYS Privileges ..... 214
7.11.6 SCTRD Privileges ..... 214
7.12 Installation and Upgrade Privileges ..... 215
7.12.1 System Privileges ..... 215
7.12.2 Object Privileges ..... 215
7.12.3 Privileges for EDA and ASP ..... 216
7.13 Server Types ..... 216
7.13.1 Audit Translation Server ..... 217
7.13.2 Batch Server ..... 217
7.13.3 Business Service Host Server ..... 218
7.13.4 Calculation Server ..... 218
7.13.5 Client Reporting Server ..... 218
7.13.6 Communication Server ..... 218
7.13.7 Corporate Actions Elections Synchronization Server ..... 219
7.13.8 Download Real-Time Market Data Server ..... 219
7.13.9 Event Calendar Server ..... 219

7.13.10 Front Office Holding Server ..... 219
7.13.11 Group code and composite rating update server ..... 219
7.13.12 Limit Server ..... 219
7.13.13 Market Data Validation Server ..... 219
7.13.14 Message Queue Server ..... 219
7.13.15 MQ Client ..... 219
7.13.16 Order Cache Server ..... 220
7.13.17 Order Manager Message Server ..... 220
7.13.18 Pricing and Key Ratios Server ..... 220
7.13.19 Real-Time Server ..... 220
7.13.20 Reporting data jobs server ..... 220
7.13.21 Service Host Server ..... 220
7.13.22 STP Server ..... 221
7.13.23 WM Server ..... 222
7.14 Service Host Server ..... 222
7.15 Server as Windows Service ..... 222
7.15.1 Service Control Manager (SCM) ..... 223
7.15.2 Service Control Program (SCP) ..... 223
7.15.3 Service Application ..... 223
7.15.4 Application ..... 223
7.15.5 Logging ..... 224
7.16 Memory Management ..... 224
7.16.1 Available memory versus addressable memory ..... 225
7.16.2 SimCorp Dimension Memory Consumers ..... 225

**8 Known Issues ..... 226**

8.1 Adobe Reader ..... 226
8.1.1 SimCorp Dimension Unable to Open PDF Formatted Manuals ..... 226
8.2 Anti-Virus ..... 226
8.3 Blat ..... 227
8.3.1 Compatibility Issue on Windows 2008 R2 ..... 227
8.4 Citrix Presentation Server/XenApp/Terminal Services ..... 227
8.4.1 Using DDE Links ..... 227
8.4.2 Short Keys in SimCorp Dimension May Have a Different Function ..... 227
8.4.3 SimCorp Dimension Crashes without Normal Error Processing ..... 227
8.4.4 SimCorp Dimension Freeze when printing from Citrix XenApp 6.5 at Windows Server 2008 R2 ..... 227
8.5 IBM WebSphere MQ ..... 228
8.5.1 Restriction on User Name Length When Using WebSphere MQ Client ..... 228
8.6 Microsoft Internet Explorer ..... 228
8.6.1 IE Extended Security Requires Supervision of Bloomberg Communication Server ..... 228
8.7 Microsoft Outlook ..... 228
8.7.1 Outlook Email Security Update ..... 228

8.7.2 Mail Not Saved in Sent Items ..... 228
8.8 Microsoft Windows ..... 229
8.8.1 Problems When Many Windows Are Open ..... 229
8.8.2 Avoid Many Files in Single Folders on the File Server ..... 229
8.8.3 Windows Marks a SimCorp Dimension Window as: (Not Responding) ..... 229
8.8.4 SimCorp Dimension Servers Need Restart After File Server Crash ..... 229
8.8.5 Unable to start MUCS as a service ..... 230
8.8.6 Script Error When Opening Online Help File ..... 230
8.8.7 Additional Security Setting When Running Communication Server ..... 230
8.8.8 Notification when executing Align Objects ..... 230
8.8.9 Internet Explorer Enhanced Security Configuration ..... 230
8.8.10 Warning DllRegisterServer. Return: 2147647516 (0x8002801c) ..... 231
8.8.11 Desktop Heap Limitations ..... 231
8.8.12 Using Windows Task Scheduler to run Batch Jobs ..... 231
8.8.13 Network Protocol Issue with File Server on Windows Server 2008 ..... 231
8.8.14 SystemArgumentException: Parameter is not valid on Windows Server 2003 ..... 232
8.8.15 Window not in Focus ..... 232
8.8.16 .NET Based Windows not Shown in the Taskbar ..... 232
8.8.17 Windows 2008 R2: Navigation to the Webpage Was Cancelled ..... 233
8.8.18 Sharing Violation during Patch Apply ..... 233
8.8.19 Shortages Serious Performance Degradation if .NET Applications are hit by Physical Memory 234
8.9 Oracle RDBMS ..... 235
8.9.1 ORA-00600, ORA-06544 and Oracle Streams Advanced Queuing ..... 235
8.9.2 Redundant Connection for Communication Server ..... 235
8.9.3 TNS: Could not Resolve Service Name ..... 236
8.9.4 ORA-600[kzdukl], [59] When Installing Queues ..... 236
8.9.5 User Creation Fails When Password Verification Function Is Used ..... 236
8.9.6 Reset Password Fails When Password Verification Function Is Used ..... 236
8.9.7 Communication Server Crashes With ORA-01460 ..... 236
8.9.8 Misleading Wait Times Reported in Oracle When Using AMD ..... 237
8.9.9 Using DISM May Cause Application or System to Hang ..... 237
8.9.10 Parent Row Delete Does Not Influence Index Monitoring ..... 237
8.9.11 Locked Statistics May Cause SimCorp Dimension to Fail ..... 237
8.9.12 Sequences Skipping Large Intervals ..... 237
8.9.13 Export utility (exp) in Oracle 11*g* R2 Does not Export Empty Tables ..... 238
8.9.14 Missing Grants After Applying 11.2.0.3 Patch 16 (Windows platform) ..... 238
8.9.15 SQLNet Trace Files Cannot Be Written To \bin\log\ Due to ADR ..... 239
8.9.16 Data Files and Tables May Be Listed as Unrecoverable ..... 239
8.9.17 ASH Emergency Flush May Cause Database Instance to Freeze ..... 239
8.9.18 Scheduled Tasks May Freeze on RAC due to Undetected Deadlock ..... 240
8.9.19 ORA-00600 [17273] during dml on DEX Table ..... 240
8.9.20 ORA-00600 [kdifind:kcbget_24] on INLISTS or Other Temporary Tables ..... 240
8.9.21 Oracle Scheduler Step may Fail with ORA-00942 ..... 241

8.9.22 Executing Statistics Gathering following Upgrade may cause Performance Instability ..... 241
8.10 SAP Crystal Reports ..... 242
8.10.1 Missing Compatibility in Crystal Reports ..... 242
8.10.2 Crystal Reports on Citrix/Terminal Server ..... 242
8.10.3 Crystal Reports and Automatic Smart Linking ..... 242
8.10.4 Missing Crystal Reports Installation File on Windows Server 2008 R2 ..... 242

**Index ..... 243**

# 1 About this Manual

This manual is for the system administrator and for people working with: Installation, operation, upgrading etc. regarding SimCorp Dimension.

Because SimCorp Dimension is a modularised application not all functionality and 3rd party software described in this manual, will be available in all installations. Therefore, in a specific installation a described functionality might not be available or it might require the purchase of one or more additional modules and/or third party software packages.

Throughout the manual there are examples and suggestions for set-up and settings. These should be seen as hints and individual approaches need to be taken according to environment, configurations and business needs.

Your SimCorp representative can assist you making the right choices for your specific SimCorp Dimension installation.

This manual will be updated until release of version 5.5 of SimCorp Dimension if there are major corrections or additions to released versions of SimCorp Dimension.

## 1.1 Manual Structure

The main structure of this manual with the main characteristics of each chapter looks like:

| Chapter | Description |
|---|---|
| 1 “About this Manual” | A chapter for quickly bringing the reader up to speed using the manual |
| 2 “SimCorp Dimension Overview” | A brief overview as well as a reference to the system architecture of SimCorp Dimension |
| 3 “System Environment” | A guide to what must be provided in order to be able to install and run SimCorp Dimension |
| 4 “System Configuration” | Information on the configuration of the technology platform, SimCorp Dimension modules and third party components that require individual configuration |
| 5 “Installation and Upgrade” | All installation and upgrade tasks, including patching SimCorp Dimension |
| 6 “System Operations” | All other System Operation tasks |
| 7 “Reference Information” | General non-operational information and lists of parameters, error codes, folders and files, application server types and more |
| 8 “Known Issues” | Listing known issues with third party software relevant for SimCorp Dimension including hints and workarounds if possible. |

Important details on how to prepare for an installation or an upgrade of SimCorp Dimension can be found in:

- Chapter 3 “System Environment”
- Chapter 4 “System Configuration”
- Chapter 5 “Installation and Upgrade”
- Section 7.12 “Installation and Upgrade Privileges”

## 1.2 Examples

A number of examples are used in order to illustrate the functionality in SimCorp Dimension. The instruments, bank names, and other financial institutions used in the examples are usually based on realistic data. However, the transactions, including accounts, custody numbers, etc., are all fictitious and any similarity with real life is purely coincidental. Amounts, prices, FX rates, etc. in the transactions are aimed to be as realistic as possible.

## 1.3 Numbers and Dates

The numeric and date formats in the text and windows in this manual are based on the Scandinavian standard. The settings are specified in the **Start** > **Settings** > **Control Panel** > **Regional and Language Options** window on your desktop.

## 1.4 APL or C# Based Windows

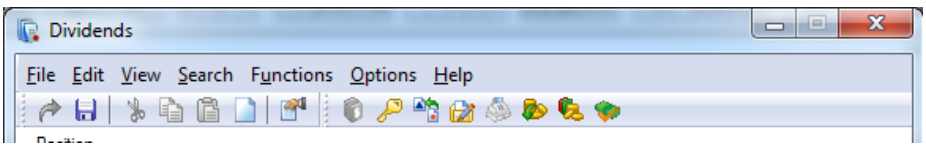
In some situations a description in this manual will refer to C# based windows, alternative to APL based windows (or modules, functionality etc.)

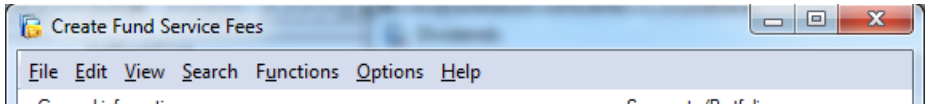
APL and C# are the two major development tools used developing SimCorp Dimension. These tools each have their strengths and will in many cases be able to produce user functionality with almost identical user experience by utilising the Microsoft Windows user interface model.

In cases where it makes sense to differentiate between windows made with the two tools, they are recognisable by, for instance, their use of menus.

C# based windows will usually be equipped with a ribbon type menu, combining a menu with toolbars, like:

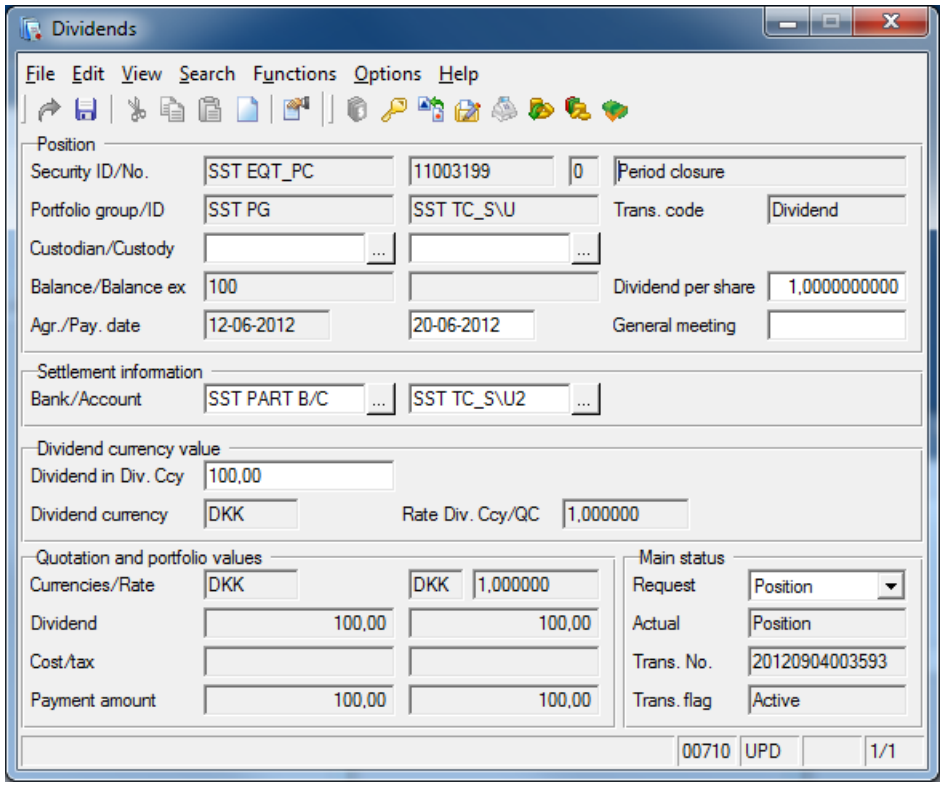
APL based windows will usually be equipped with a menu like the below examples, either with or without a toolbar:






APL based windows will reflect the Windows theme chosen in Windows Control Panel. The window below shows how SimCorp Dimension looks with a Windows theme “Aero Themes”. Using the Basic and High Contrast Theme “Windows 7” will look almost the same, except from the “look through” effect on title bar.

Using other Windows basic and High Contrast Themes will make the same window look like this:




It is possible to force SimCorp Dimension to overrule the Windows themes and show windows as the latter for all users. The parameter to overrule the Windows themes is called `XPLookAndFeel` and is found in the cnf.ini file. Please see: 7.4 “Configuration File Parameter Overview”.

## 1.5 The Database

The database used for this manual is an internal database in SimCorp. All available SimCorp Dimension functionality is installed in this database. Part of this functionality may not be available to you due to authorisation or if the functionality has not been acquired by your company.

## 1.6 Referenced and Suggested Documentation

Beside this manual a number of other manuals and documents describe subjects related to the SimCorp Dimension set-up and environment.

The following manuals describe topics that might be relevant to system administrators. They are all part of the documentation set available from SimCorp Dimension and some of them also from the SimCorp Client Support:

- ***Archiving***
- ***Audit Trail and Four Eyes Principle***
- ***Auxiliary Jobs***
- ***Batch Jobs***
- ***Data Cleanup***
- ***Data Extractor***
- ***Patch Procedure***
- ***Real-time Environment***
- ***System Access***
- ***System Maintenance***
- ***System Options***
- ***System Performance***
- ***Tools***

Other recommended documents, available from the SimCorp Client Support are:

| Document | Description |
|---|---|
| Technology Platform Roadmap | Expectations to the future technological development in the technology platform for SimCorp Dimension, looking several releases ahead. New version published frequently |

Additionally, the following documents have been referenced in this manual:

| Document | Available from |
|---|---|
| ***Changes to Tables and Views for 5.4*** | Online documentation and SimCorp Client support |
| ***Communication Server*** | Online documentation and SimCorp Client Support |
| ***Market Data*** | Online documentation |
| ***Migrating database from single byte to multi byte character set*** | SimCorp, on request |
| ***Front Office Implementation Guide*** | Online documentation and SimCorp Client Support |
| ***Oracle ADG Preferred installation and configuration for SimCorp Dimension*** | SimCorp, on request |
| ***Preferred Oracle Configuration for SimCorp Dimension*** | Online documentation and SimCorp Client Support |
| ***Report Book Manager 2.8 System Administrator's Manual*** | SimCorp Client Support |
| ***Report Book Manager 2.8 How to copy a Coric installation*** | SimCorp, on request |
| ***Setting up Reference Data*** | Online documentation |
| ***SimCorp Dimension Upgrade – Align Objects and use of the Oracle Scheduler*** | SimCorp Client Support |

| Document | Available from |
|---|---|
| ***SimCorp Dimension Upgrade – Controlling database resources*** | SimCorp Client Support |
| ***SimCorp Dimension – Local Installation White Paper*** | SimCorp, on request |
| ***How to copy the SimCorp Dimension database*** | SimCorp, on request |
| ***New help System*** | Online documentation and SimCorp Client support |

## 1.7 Key to Support Matrix

The following list shows the meaning of the symbols used in the support matrices for platform software components. Please note that "support" relates to SimCorp Dimension using the component. SimCorp doesn't support the software components per se.

| Symbol | Meaning |
|---|---|
| | Recommended – fully supported and is currently the preferred choice in the category |
| | Fully supported – has been thoroughly tested, all found issues fixed before release |
| | Partially tested – supported, any found issues have been fixed before release |
| | Not tested – status unknown, will not be tested and is not supported |
| | Known issues – not supported, unresolved known issues exist, but may work for some clients |
| | Does not work – not supported, the component/SimCorp Dimension combination is known not to work |

# 2 SimCorp Dimension Overview

SimCorp Dimension is a modular investment management system designed for the Microsoft Windows operating system and the Oracle relational database.

This chapter provides a technical overview of SimCorp Dimension, covering system architecture, the SimCorp Dimension Portal and some information on selected areas: Information Security Management, the database, External Data Access, incidents and service requests. Also a support discontinuation schedule can be found here. The remainder of the manual provides a more detailed description.

## 2.1 System Architecture

SimCorp Dimension is based on a distributed mixed client/server and n-tier architecture with a thick client approach in order to provide a rich user experience and ability to handle complex data manipulation efficiently. The clients run from PCs using Microsoft Windows; desktop virtualisation via Citrix or Microsoft Terminal Services is frequently employed. The clients connect to the database and services running on other servers on the LAN (Local Area Network). Mid-tier and infrastructure services run on server hardware running Microsoft Windows. Deployment of application files are done to a file server from which applications are run or partly duplicated locally on each machine running SimCorp Dimension processes.

A database server running the Oracle RDBMS is required. The database can be Oracle Standard or Enterprise Editions (for a list of features in SimCorp Dimension requiring Enterprise Edition, please refer to section 3.2.4.1 “Features Requiring Oracle Enterprise Edition”).

A server running Microsoft Windows is used for the SimCorp Dimension Message and User Control System (please refer to section 6.6.7 “MUCS” for more details).

The SimCorp Dimension Communication Server is used to connect SimCorp Dimension to external applications for message or file base communication and interfacing (please refer to section 4.2.3 “Communication Server” for more details).

SimCorp Dimension batch jobs may be used to automate a wide range of tasks in SimCorp Dimension. These include portfolio calculations, data import and a number of back office tasks, for example creation of back office transactions or raising transaction status. These batch jobs act as automated client sessions, and can be scheduled and run from PCs or servers running Microsoft Windows.

In addition, a number of Windows application servers may be used. These may be used for various price feeds and other parts of SimCorp Dimension that can run as a server process – for instance to distribute calculation power or as other business services for the client application. This includes, among others, server processes for:

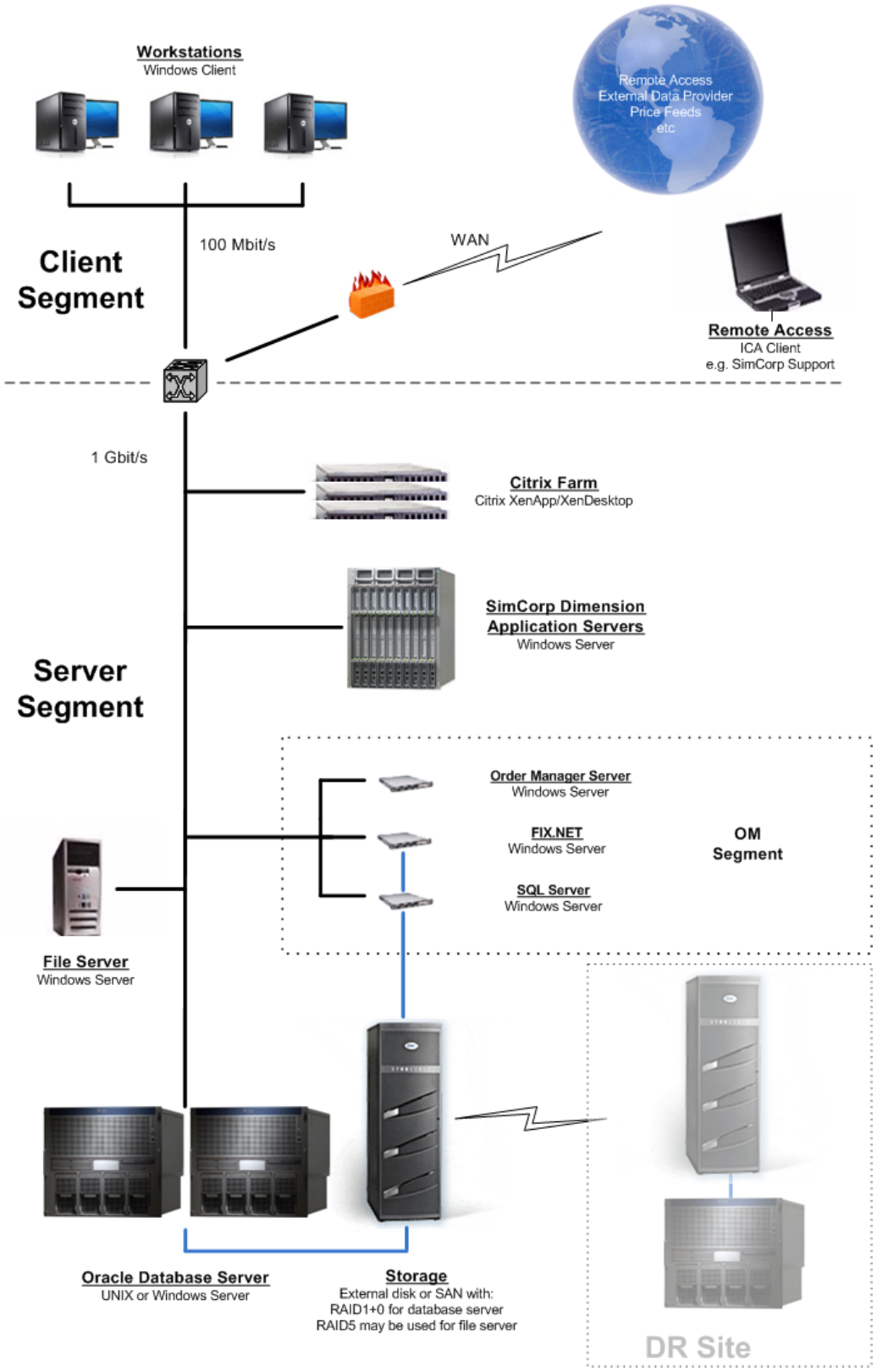
- Calculation servers (Portfolio, Performance, Limit)
- SimCorp Dimension Message Queue Server
- Real Time Market Data Servers
- STP Servers (Straight Through Processing)

Please refer to section 6.6.2 “Application Servers” for more details and section 7.13 “Server Types” for a complete list of servers.

The diagrams presented in sections 2.1.1 “SimCorp Dimension Set-up Example” illustrate such a set up.

Section 3.1.1 “Platform Support Matrix” provides a description of supported and required third party software versions.

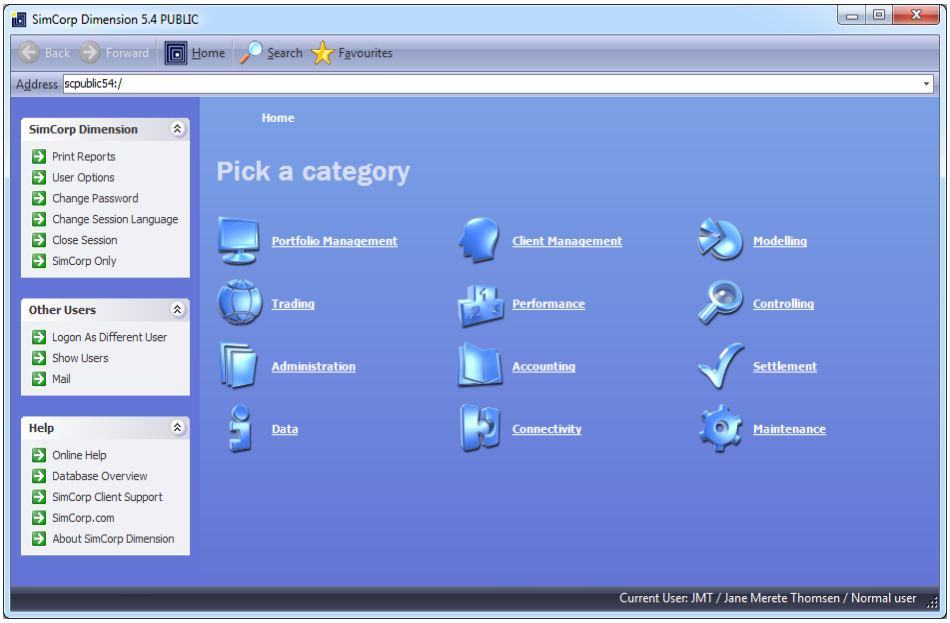
### 2.1.1 SimCorp Dimension Set-up Example




Please refer to section 3 “System Environment” for detailed recommendations on the hardware and software.

### 2.1.2 The SimCorp Dimension Portal

The user entry to SimCorp Dimension is through the SimCorp Dimension Portal.




The portal employs the following terms as a hierarchy: Category, Module, Menu and Task. Category is the top-level entry to a task. A category consists of modules and modules consist of menus and/or tasks. A menu consists of tasks and a task is an actual operation. For example, Category: Maintenance, Module: System Maintenance, Menu: Database Administration, Task: Database User Schemas Administration.

During this manual reference to a given category, module, menu and task will use a format as shown in the following example: **MAINTENANCE** (category) > **SYSTEM MAINTENANCE** (module) > **Database Administration** (menu) > **Database User Schemas Administration** (task).

Shortcuts to categories, modules, menus and tasks can be created and placed on the desktop.

It is possible to add links to SimCorp Dimension categories, modules, menus and tasks to your Internet Explorer browser Favourites using **Add to Favourites** in the SimCorp Dimension Portal, available when right-clicking on a category, module, menu or task.

When doing so, the favourites are by default placed in:

```
%USERPROFILE%\Favourites\SimCorp Dimension [- Type]
```

Example:

| TYPE= | Folder where favourites are saved |
|---|---|
| `Not specified` | `%USERPROFILE%\Favourites\SimCorp Dimension` |
| `MyType` | `%USERPROFILE%\Favourites\SimCorp Dimension - MyType` |
| `AnotherType` | `%USERPROFILE%\Favourites\SimCorp Dimension - AnotherType` |

The added favourites are also available through the Favourites menu in the portal itself.

Changing input focus from the portal address bar to the content area is achieved by pressing Escape.

To close the SimCorp Dimension session from the main portal window use the **Close Session** link in the left hand frame of the portal or write `close session` in the address bar of the portal and tab to the link. Please note if you close the Portal via the standard Windows Close Button (X), this will not terminate the session, but only close the Portal window.

Section 7.1.1 “scd.exe” provides more information on the Type option.

| | |
|---|---|
| **Note** | When first opened, the SimCorp Dimension session remains active in the notification area of the Windows taskbar. This is even after the main portal window has been closed. In order to **Close session**, **Logon as a different user** or **Open new portal** right click on the SimCorp Dimension icon in the notification area of the Windows taskbar. |

### 2.1.3 System Options

The system contains various system options, which will need customisation. The **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** menu contains tasks for this. Please refer to section 4.2 “Standard Configuration” as well as the SimCorp Dimension ***System Options*** User Manual for further details on how to configure these options.

### 2.1.4 Reporting

Build-in report functionality is developed in Crystal Reports. A runtime version of Crystal Reports is required for executing reports or printing from grids in APL-based SimCorp Dimension windows.

## 2.2 Database – Overview

The SimCorp Dimension database consists of SimCorp Dimension metadata and SimCorp Dimension application data.

SimCorp Dimension system metadata is part of the SimCorp Dimension application and is kept in a separate tablespace different to the application data tables.

As part of the installation of SimCorp Dimension it is decided which tablespaces to use.

The data database objects may either be kept in the tablespace for application data (SCDAT) or divided into more tablespaces, what is the recommended. The basic tablespaces are listed below with the configuration file parameter name stated in brackets after each tablespace usage:

- One for application data (datts)
- One for the data owner’s indexes (indexts)
- One for application audit data (auditts)
- One for audit indexes (audixts)
- One when using Staging tablespace (aofullcopytablespace)

The document ***Preferred Oracle Configuration for SimCorp Dimension*** provides a detailed recommendation on how to configure the database for SimCorp Dimension. This document is available as online documentation in the application and at SimCorp Client Support.

Beside the tablespaces that are stated in the configuration file it is possible to place selected tables and indexes in separate tablespaces using the **Table Storage Customisation** task from inside SimCorp Dimension. Please refer to section 6.1.4 “Table Storage Customisation” for more information.

In addition, separate tablespaces must be created if the SimCorp Dimension application uses the Trade Order Manager, Data Extractor or the Communication Server.

Please refer to section 3.2.4 “Database Server” for more details on the database.

The **Database Administration** menu holds a number of database checks. Please refer to SimCorp Dimension ***System Maintenance*** User Manual for details.

## 2.3 Data Access from outside SimCorp Dimension – Overview

The SimCorp Dimension tables are protected from outside data modification, except for a limited set of tables mainly used for Message Queues and selected interfaces. Please refer to section 4.1.4.8 “Data Protection”.

SimCorp Dimension provides read-only access to data tables through a read-only Oracle role, for instance SCREPROLE (please refer to section 4.1.4.7 “Database Users and Roles” for more information).

The EDA feature is based on the Oracle “Fine Grained Access Control” mechanism found in Oracle Enterprise Edition. When enabled in SimCorp Dimension, an external user’s read access to tables is linked to the authorisations of a user defined in SimCorp Dimension. Please refer to section 4.1.4.9 “External Data Access” for more information.

## 2.4 Support

### 2.4.1 Incidents and Service Requests

If an unexpected event occurs in the system, SimCorp Dimension generates an error log of the issue. The error log file contains technical information about the issue along with a user comment if entered and installation specific information. The error can be automatically transferred using Operational Data Assistant (ODA). Based on the error log information a Service Request can be created on SimCorp Client Support.

SimCorp Dimension Service Requests should be reported through SimCorp Client Support at: https://clientsupport.simcorp.com. Please contact customer service for details on how to log on to SimCorp Client Support. SimCorp recommends that Automatic transfer of error log information is enabled. This will help with faster identification and correction of errors.

Any technical issues should be directed to customer service for creation of a Service Request - Please see SimCorp Official contact list for address or phone number on www.simcorp.com.

### 2.4.2 Operational Data Assistant Solution

SimCorp Dimension contains a solution for support built-in into the application. The solution with e-mail is complemented by the Operational Data Assistant solution.

Operational Data Assistant is an integrated SimCorp Dimension component. The client initiates the automatic transfer of support related information.

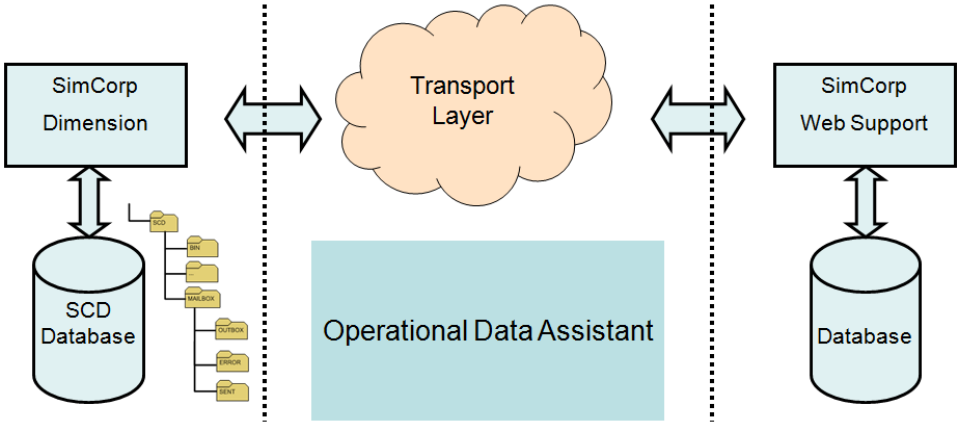
Operational Data Assistant is a requirement for Front Office and C# based applications as:

- Asset Manager
- Portfolio Workbench
- Compliance Manager
- System Manager
- Risk Analysis Manager
- Fund Administration Manager
- Service Host Server
- Service Agent
- Communication Server
- OTC Derivatives Manager
- Order Manager
- Data Import Rules
- Settlement Manager

### 2.4.2.1 Operational Data Assistant functionality

Operational Data Assistant delivers the following support to the system users:

- Consistent logging of important SimCorp Dimension information within covered areas
- A uniform communication channel from the installation to SimCorp support system
- More robust support solution from the application




Relevant information from the installation is sent to SimCorp Support using a Communication Server solution. The information is sent to SimCorp via an https request to a Web Service hosted by SimCorp. The SimCorp Dimension installation initiates all communication. No communication is initiated from outside the installation.

In case the database connection is lost the information is saved in Windows.

### 2.4.2.2 Covered Areas

The covered areas are:

- Patch apply information – update patch status in SimCorp Support System
- SCMeta – update database system statistics to track database growth and related areas
- Error logs – automatic transfer of all error logs generated in the system to SimCorp Client Support (with option to create Service Requests based on the error log)
- Start up message

More areas may be added at a later time.

#### 2.4.2.3 Requirements

Operational Data Assistant uses SimCorp Dimension Communication Server. The solution is implemented as a run-time solution and does not require any new modules to be purchased if the Communication Server is already installed on the system.

For a description of how to configure and use Operational Data Assistant (ODA), please refer to the ***SimCorp Dimension Operational Data Assistant User manual*** available from SimCorp Client Support

Responsibilities:

**SimCorp** The configuration of the solution is maintained by SimCorp

**Client** The client is responsible for starting, monitoring and stopping the server. The communication to the SimCorp hosted Web Service must be provided by the client

#### 2.4.2.4 Operational Data Assistant packer utility: ODAPacker

To transfer error logs without having the Operational Data Assistant service running a manual packer utility is available. The utility is called ODAPacker. It can be used for ad-hoc transfer or when the real-time solution is not implemented yet.

ODAPacker is located in the Bin directory and the full name of the executable is:

```
SimCorp.IMS.SystemOperation.Diagnostic.Utilities.ODAPacker.exe
```

The user running ODAPacker must have the same access rights as the user account running the Operational Data Assistant server see sections 7.9.1 “Permissions for All Users” and 7.9.2 “Permissions for Certain Users”.

ODAPacker is configured with default settings that enable the user to run it from the Bin directory without further settings. This means that the following is done when ODAPacker is executed from the Bin directory:

- Find all error log XML files in ..\RConnect\Outgoing
- Pack them into a zip file including any referenced DCF files
- The files are stored in a zip file called “[date/time]_ODAPacked.zip” in the Tmp directory
- ODAPacker creates a log file called “ODAPacker[date/timestamp].log ” in the Tmp directory
- The processed error log files are moved to the “..\Transferred” folder (the folder is created if it does not exist)
- Any .DCF files are left in their original location
- The user is notified about location and names of zip file and log file

The zip file can be attached to a service request or e-mailed to SimCorp.

ODAPacker can be started with a set of command line options. The command line options are used specify different source and destinations folders than the default folders. It is possible to run the ODAPacker utility in silent mode where the message box is not shown at the end of the operation.

To see available command line options open a command prompt and navigate to the SimCorp Dimension bin folder.

```
..\Bin> SimCorp.IMS.SystemOperation.Diagnostic.Utilities.ODAPacker -?
```

That will result in this output:

```
SimCorp.IMS.SystemOperation.Diagnostic.Utilities.ODAPacker
Usage:
-source|-s:     The directory where to look for ODA files (default
..\Rconnect\Outgoing)
-destination|-d:        The directory where to place the packed
files (default ..\Rconnect\Transferred)
-silent|-si:    Disables messagebox shown on completion
-help|-?:       Shows this help
```

If you want to store the files from the current installation to another folder than the default location:

```
..\Bin>SimCorp.IMS.SystemOperation.Diagnostic.Utilities.ODAPacker -
d:\\dk01sn012\shares\SCDimension\temp
```

If you want to take files from your UAT environment and store them in a folder outside any of environments:

```
..\Bin>SimCorp.IMS.SystemOperation.Diagnostic.Utilities.ODAPacker -
s:\\dk01\sn012\shares\SCDimension\UAT\RConnect\Outgoing -
d:\\dk01sn012\shares\SCDimension\temp
```

### 2.4.3 Support Discontinuation Schedule

SimCorp supports three active versions of SimCorp Dimension. According to standard contracts Clients are obliged to use supported version.

Every time a new version of the system is released, the support is discontinued on the oldest active version.

Release dates for SimCorp Dimension versions are scheduled to be 1st of February and 1st of August.

With the release of version 5.4, the oldest active version of the system will be version 5.2. Support on version 5.1 is discontinued as of 31 July 2013.

In order to facilitate your planning of future upgrades, please note the schedule for support discontinuation:

- 5.2 Support discontinues on 31 January 2014
- 5.3 Support discontinues on 31 July 2014
- 5.4 Support discontinues on 31 January 2015

## 2.5 Third Party Software

SimCorp Dimension depends on and utilises various third party software components. Chapter 3 “System Environment” lists these component versions.

# 3 System Environment

This chapter provides information on the hardware platforms supported as well as third party software requirements.

SimCorp Dimension scales both horizontally and vertically. Depending on the actual performance requirements coupled with specific requirements for failover SimCorp Dimension can be configured to handle data volumes and workload distribution.

Due to the varied nature of individual user loads and system profiles, the actual hardware configuration is difficult to generalise. It is recommended that a performance test is made before going live to verify the initial hardware scaling, and that SimCorp Capacity Management Service is being utilised regularly thereafter, which will help detecting areas where the performance can be improved by adjusting the hardware setup and system configuration.

| | |
|---|---|
| **Note** | SimCorp Dimension is not supported on hardware or software other than stated in this manual. The software is tested to run on the components listed. Other combinations of hardware and software may work. However, any errors indicating a source in either hardware, software or any combinations of hardware and software, must be reproduced in a system following the standards. Otherwise SimCorp will not follow the issue as part of any maintenance task, but may do so on a time and material basis depending on availability of skilled resources for the tasks. |

Certain requirements to the system environment are standard for SimCorp Dimension clients and servers, while others are module specific. It is the client's responsibility to provide the system environment needed for running SimCorp Dimension and its individual modules. The prerequisite software components needed are in general not included with SimCorp Dimension, unless otherwise specified.

Please be aware of known issues relating to third party software specified in chapter 8 "Known Issues".

## 3.1 Technology Platform

SimCorp Dimension is supported on a set of hardware and software products. However, for each client, server, module or third party software in use there might be special considerations to make – for instance a particular server might support only part of the technology platform or add additional requirements to it.

### 3.1.1 Platform Support Matrix

The support matrix below shows which platform components the supported releases of SimCorp Dimension are currently supported to use – the platform components themselves are not supported by SimCorp.

Please find a description of the symbols used in section 1.7 "Key to Support Matrix".

When a service pack level is shown it means that this is the supported service pack level, used in most SimCorp test environments. If the vendor support for a service pack has ended, SimCorp Dimension is no longer supported with it unless otherwise specified.

Microsoft released security updates can be applied when needed.

| Platform Technology | | Rel. 5.2 | Rel. 5.3 | Rel. 5.4 |
|---|---|---|---|---|
| Client | Windows Vista Enterprise SP2 – 64-bit | ✓ | ✓ | ✓ |
| | Windows 7 Enterprise SP0 – 64-bit | ✓ | ✓ | ✓ |
| | Windows 7 Enterprise SP1 – 64-bit | ✓ | ✓ | ✓ |
| | Windows 7 Professional SP0 – 64-bit° | ✓ | ✓ | ✓ |
| | Windows 7 Professional SP1 – 64-bit° | ✓ | ✓ | ✓ |
| | Windows 8 | ✗ | ✗ | ○ |
| Server | Windows Server 2003 R1 SP2 – 64-bit | ✓ | ○ | ✗ |
| | Windows Server 2003 R2 SP2 – 64-bit | ✓ | ✓ | ○ |
| | Windows Server 2008 R1 SP2 – 64-bit | ✓ | ✓ | ✓ |
| | Windows Server 2008 R2 SP0 – 64-bit | ✓ | ✓ | ✓ |
| | Windows Server 2008 R2 SP1 – 64-bit | ✓ | ✓ | ✓ |
| | Windows Server 2012 | ✗ | ✓ | ✓ |
| Citrix | XenApp 5.0 | ○ | ○ | ✗ |
| | XenApp 6.0 | ✓ | ✓ | ✓ |
| | XenApp 6.5 | ✓ | ✓ | ✓ |
| | XenDesktop 4.0 | ✓ | ✓ | ✓ |
| | XenDesktop 5.0 | ✓ | ✓ | ✓ |
| | XenDesktop 5.5 | ✓ | ✓ | ✓ |
| | XenDesktop 5.6 | ✓ | ✓ | ✓ |
| | Citrix Web Client 12.x.x | ✓ | ✓ | ✓ |
| | Citrix Receiver 3.4 | ○ | ○ | ○ |
| DBMS | Oracle 11*g* R2 Standard°° | ✓ | ✓ | ✓ |
| | Oracle 11*g* R2 Enterprise°° | ✓ | ✓ | ✓ |
| Microsoft .NET Framework | Microsoft .NET Framework 3.5 SP1 – 32-bit# | ✓ | ✓ | ✓ |
| | Microsoft .NET Framework 3.5 SP1 – 64-bit# | ✓ | ✓ | ✓ |
| | Microsoft .NET Framework 4.0 – 32-bit# | ✓ | ✓ | ✓ |
| | Microsoft .NET Framework 4.0 – 64-bit# | ✓ | ✓ | ✓ |
| | Microsoft .NET Framework 4.5 | ✗ | ✓ | ✓ |
| Microsoft IE | Internet Explorer 8.0 | ✓ | ✓ | ✓ |
| | Internet Explorer 9.0 | ✓ | ✓ | ✓ |
| | Internet Explorer 10.0 | ○ | ✓ | ✓ |
| Vmware | VMware vSphere 4.1 Update 2 | ✓ | ✓ | ✓ |
| | VMware vSphere 5.0 update 1 | ✓ | ✓ | ✓ |
| | VMware vSphere 5.1 | ✓ | ✓ | ✓ |

° The Professional edition of Windows 7 has not been specifically tested but is supported due to the assumption that its basic features are identical to the Enterprise edition.

°° Please refer to section 3.1.4 “Oracle RDBMS Patches” for details on patch levels.
♯ SimCorp Dimension needs both the 32-bit and the 64-bit editions of the .NET Framework. Furthermore, due to some compatibility issues with third party software components, it is, necessary to install both .NET Framework 3.5 SP1 and 4.0 (also in both 32-bit and 64-bit editions).

**Note** SimCorp Dimension is no longer supported on any 32-bit version of Windows. Any exceptions from this are described in section 3.1.6 “64-bit Support”.

**Note** When running Reuters Real-time market data servers, please contact Reuters support for any support deviation on platform/service pack against the platform support matrix below. The Reuters SFC API version supported by SimCorp Dimension can be found in section 3.2.1 “SimCorp Dimension Clients”.

### 3.1.2 Supported Operating Systems for SimCorp Dimension Elements

The following table provides an overview of the supported operating systems on which the various elements of SimCorp Dimension are supported:

| Element | Windows Client | Windows Server | UNIX |
|---|---|---|---|
| File Server | No | Yes | No |
| Oracle Database | No | Yes | Yes |
| Citrix/Terminal Server | No | Yes | No |
| SimCorp Dimension Client process | Yes | No* | No |
| SimCorp Dimension Application Server process | No | Yes | No |
| SimCorp Dimension Batch Job Group process | No | Yes | No |
| SimCorp Dimension Installation/upgrade process | Yes | Yes | No |
| MUCS | No | Yes | No |
| Order Manager Client | Yes | No | No |
| Order Manager Server components | No | Yes | No |
| FIX.NET SQL Server database | No | Yes | No |

* The SimCorp Dimension client process is supported on Citrix XenApp running on Windows Server platform

### 3.1.3 Future Supported Third Party Software Versions

For a detailed description of technology utilisation plans for the future, please refer to the ***SimCorp Dimension Technology Platform Roadmap*** document available from SimCorp Client Support.

The ***Technology Platform Roadmap*** shows some of the third party software versions that future versions of SimCorp Dimension are currently being planned for. Some of these may be supported already with the current version of SimCorp Dimension while others may be new. Hence, the document can be seen as the list of which platform components we aim for supporting in future SimCorp Dimension versions.

Please note that it is only a guideline for future planning and subject to changes in the third party software manufacturers’ release plans. Likewise the guidelines may be adjusted if results of testing new SimCorp Dimension versions make changes to third party

software versions necessary. For those reasons, the ***Technology Platform Roadmap*** is updated regularly, usually four times a year.

#### 3.1.3.1 Some Basic Principles

Security and critical updates from Microsoft are expected to be applied in all production environments. Such updates are applied to our quality assurance environment at regular intervals. SimCorp does not test all combinations.

Predicting release dates of security patches, service packs and the like for third party software is difficult and in most cases impossible.

### 3.1.4 Oracle RDBMS Patches

A number of patches must be applied before SimCorp Dimension can run on Oracle 11*g*.

The Oracle RDBMS patch version is a minimum and is the version used in the SimCorp release test for the SimCorp Dimension version in question. The release test is a large undertaking that substantiates the recommended patch level.

SimCorp Dimension is still supported on newer patch versions of Oracle, but it will not be exposed to same test effort in SimCorp. Please feel free to ask SimCorp if there are any new "known issues" on a specific patch level before adding this to your environment.

| Operating System | Patch Bundle/Patches for Oracle 11.2.0.3 |
|---|---|
| Windows | Minimum 11.2.0.3 Bundle Patch 16 (16167942) |
| All Unix/Linux | Minimum 11.2.0.3 and the below fix for bugs: |
| | In all cases:<br>• 13036331 ORA-01031 INSUFFICIENT PRIVILEGES WHEN GRANTING EXECUTE ON DBMS PACKAGES |
| | If the Order Manager module is present in the installation file :<br>• 13907462 NEED HELP DIAGNOSING ORA-7445 [KTCN_FIND_OBJINV()+44]<br>• 14313519 BACKPORT TRACKING BUG FIX FOR 14040124 ORA-7445 [KTSPSRCH_RESET()] |
| | If any Partitioning Module is present in the installation file:<br>• 12617123 ORA-00001 (SYS.I_TABPART_BOPART$) WHEN TRYING TO SPLIT SUB PARTITION *<br>• 12678920 ORA-7445 KKPOBIFD_BUILD_IDX_FRAG_DESCRS AND ORA-03113 WHEN USING SPLIT PARTITION *<br>• 14064573 ORA-00600: INTERNAL ERROR CODE, ARGUMENTS: [KKPAPSETFRO0] |

* Please note that 13431660 merge patch is to be used on top of 11.2.0.3.0 for bugs 12617123 and 12678920. Merge patch 13842841 is to be used on top of 11.2.0.3.1PSU for bugs 12617123 and 12678920. For other patch set levels please look up the merge patch number on "My OracleSupport" using bugs numbers.

Please search My Oracle Support for the patches suitable for your platform.

On AIX the following must be considered when upgrading to Oracle 11.2.0.3 to avoid poor performance. For AIX 6.1 TL7 or above apply the patch for bug 13443029 “AIX: Excess "work USLA heap" process memory use in 11.2 on AIX”. For AIX 6.1 TL6 and earlier you should apply the patch for bug 10190759 “PROCESSES CONSUMING ADDITIONAL MEMORY DUE TO 'USLA HEAP'”. These issues has no direct impact on SimCorp Dimension, but if the proper patch is not applied the database sessions will consume considerable more memory than they did on 10*g*. As an extreme consequence the database host may end up in a hung state due to excessive memory utilization increase for each dedicated server process. More information can be found in Oracle doc id 1260095.1 available on My Oracle Support.

| | |
|---|---|
| **Note** | Please note that if you upgrade AIX to AIX 6.1 TL 7 or above it is necessary to remove patch 10190759, if added, and apply patch 13443029 instead – otherwise the Oracle instance will not start. |

Additionally, also AIX specific, please consider the following :

- Patch:14478927 Merge patch fixing the following two bugs:
  - Document:12412983.8 AIX: "asynch descriptor resize" wait not necessary on AIX
  - Document:13400729.8 increased elapsed time on "db file scattered read" in IBM AIX
- Patch:13947840 Merge patch fixing the following two bugs:
  - Document:11689561.8 hash join consumes more CPU in IBM AIX
  - Document:12596494.8 higher cpu usage in IBM AIX
- Patch:13498267 AIX-11202-CRS: HIGH CPU OVERHEAD OF AN "IDLE" RAC CLUSTER

### 3.1.5 Required Physical Memory Size

A practical approach to determining the initial hardware requirements, including memory size for all clients and servers, was mentioned in the introduction of this chapter.

Several parameters can be adjusted, like available memory, CPU speed and number of CPU cores, and, as suggested, the best setup cannot be determined before a performance test has been conducted or some experience from using the system has been gathered.

In most cases the primary bottleneck is physical memory rather than lack of CPU power, even if it looks like the CPUs are working a lot. More physical memory very often relieves the CPUs for much work related to memory management issues. There are no simple formulas to calculate an optimal amount of physical memory to run a certain amount of SimCorp Dimension jobs.

Windows has a rather complex way of managing physical memory, and memory that does not appear to be used directly is typically used as cache and thereby speeding up things indirectly. Once the system is too short on physical memory, the performance degradation is severe, and the cure is more RAM or less load.

The dynamic nature of SimCorp Dimension processes makes easy memory capacity calculations difficult. For instance, a Windows Server running SimCorp Dimension server processes with relatively low memory requirements and that often are idle can accommodate many more of these kinds of processes than a server running processes having high memory requirements and rarely are idle.

While physical memory shortage generally has negative impact on performance for the entire computer, the negative effect is amplified by automatic resource management mechanisms in the .NET platform. In .NET, "garbage collections" are performed regularly

in order to free unused memory. Upon physical memory shortages, this process requires frequent and performance costly memory swapping. Consequently, having physical memory for the total memory requirements is even more important for the .NET platform. Check known issue 8.8.19 “Serious Performance Degradation if .NET Applications are hit by Physical Memory Shortages”

The bottom line is that having plenty of physical memory is a good measure against extreme performance degradations.

The safe choice is to sum up the peak total address space footprints for all SimCorp Dimension processes (found as **Virtual Size** in **Process Explorer** or just **VM** in PsTools **PsList** - both from sysinternals; Note that **Task Manager** does not have this counter). Even though some of these sizes include shared memory between processes (mostly executable modules), and memory that is only reserved / mapped but not actively used, the 'excess' memory can be used by other Windows activities including caching.

| | |
|---|---|
| **Note** | Even “idle” SimCorp Dimension processes do unattended event handling. You cannot be sure of the memory footprints of such a process – and especially not by monitoring Mem Usage, which is highly dynamic, while VM Size (or VM) of a process is a reliable and significant value in this context. |

Next to what is referred to as the SimCorp Dimension processes above, there are also other processes bundled with each running version of SimCorp Dimension, most notably an Auxiliary Process (AP) used for financial calculations etc. – such additional processes should also be monitored and calculated into the sum.

| | |
|---|---|
| **Note** | In 64 bit processes, "Out-of-Memory" only appears if the physical limit for "virtual memory" is hit. In practice, this means exceeding RAM size plus the paging file size. The latter is either limited by a fixed "Custom size", or by lack of enough free disk space if "System managed size" is configured. |

### 3.1.6 64-bit Support

SimCorp Dimension clients and servers must run on 64-bit operating systems.

Although SimCorp is working closely with its third-party partners around support for 64-bit editions of Windows Server (emulated 32-bit or native), not all suppliers fully support their products in this environment. SimCorp therefore cannot guarantee correct operation of these components and any module dependent on these components running on 64-bit platforms.

The following module shows some limitations when running on a 64-bit Windows client platform:

| Module | Description |
|---|---|
| Report Book Manager | Whilst the Coric product suites are 32-bit applications, they are supported on Microsoft's Windows 2008 64-bit version. |

### 3.1.7 Unicode Support

By default, the SimCorp Dimension application supports Unicode while the database is using the single byte character set WE8MSWIN1252. Through additional steps the move to database Unicode support is possible, requiring the SimCorp Dimension **UNICODE** support module.

The following third party products, SimCorp Dimension modules and platform components are known to have problems with Unicode or have a technical limitation:

| Product or module | Description |
|---|---|
| XpressInstruments | Certain restrictions apply, as described in section 3.1.7.2 "XpressInstruments Unicode Restrictions" |
| DDE Links | DDE Links does not support Unicode text strings. It is currently used in **PORTFOLIO MANAGEMENT>POSITION ANALYSES** , **POSITION SIMULATION** and **MULTI ANALYSES**. Please note that it is DDE **Links** that doesn't support Unicode as the **Real-time Data** DDE functionality fully supports Unicode. |
| scd.exe<br>mucs.exe<br>srvstat.exe | These SimCorp Dimension applications support only ANSI (ISO-8859-1) characters as arguments. Unicode characters as input characters will lead to errors or unpredictable behaviour |
| <BIN>\def.ini<br><BIN>\Files.ini<br><BIN>\ins.ini<br><DATA>\cnf.ini<br><PROG>\prg.ini | These configuration files (.ini files) are restricted to contain only ANSI characters |
| File and folder names | The files and folder structure for SimCorp Dimension have to be named using ANSI characters only |
| Certain fields require single byte code page to be defined | In a number of places where single byte restrictions are still needed, SimCorp Dimension needs to know which single byte code page to use in these situations. This single byte code page is defined in the ins.ini file and defaults to 1252. The ins.ini file can be modified only by SimCorp, as described in section 7.8.4 "The Data Folder" |

For more information on character sets, please refer to section 4.1.4.3 "Supported Database Character Sets".

#### 3.1.7.1 Native File Unicode Support

There is full support for reading and writing Unicode files in SimCorp Dimension. However, this is connected to the database setup, meaning that if single byte database character set is chosen only single byte files can be handled. Windows ANSI (ANSI) and IBM850 (ASCII) are always installed, while Unicode (utf8 and utf16) is now available through the SimCorp Dimension **UNICODE SUPPORT** module.

#### 3.1.7.2 XpressInstruments Unicode Restrictions

The IML Engine used by the **XPRESSINSTRUMENTS** module is not Unicode compliant. Therefore, form fields that interface with the IML Engine, by passing “strings”, will be restricted to the configured Windows codepage character set (default 1252). The visible form fields affected within SimCorp Dimension that pass “strings” to the IML Engine are:

- **DATA**, **REFERENCE** > **Countries and Currencies** > **Bank Holidays** - the field **Calendar ID** (uppercase only)
- **DATA**, **REFERENCE DATA** > **Countries and Currencies** > **Countries and currencies** - the field **Currency** (uppercase only)
- **DATA**, **REFERENCE DATA** > **Miscellaneous Codes** > **Rating Agencies** - the field **Rating codes**
- **DATA**, **XPRESSINSTRUMENTS** > **XpressInstruments** > **Multi Leg Test Instrument** - the field **Contract Definition.Legs.Leg id**

### 3.1.8 Citrix XenApp and XenDesktop

If you have SimCorp Dimension users outside the reach of the LAN, a thin-client/server topology is needed. SimCorp recommends a solution based on Citrix XenApp (formerly known as Citrix Presentation Server) and Microsoft Windows Server family. Citrix XenApp runs on a dedicated Windows Server running Terminal Services. For actual versions of server and client software please refer to section 3.1.1 “Platform Support Matrix”.

Requirements for the Citrix server are very dependent on the number of remote users and the number of applications they run on the terminal server. The users share an installation of the operating system as well as SimCorp Dimension, but they still need memory and CPU power to execute both OS components and applications.

The SimCorp Dimension user capacity on a Citrix server depends on the user's work intensity in terms of load on memory, CPU, network and other resources. As an overall consideration, to be used as a starting point for dimensioning the Citrix servers: even though it is theoretically possible to create a functional minimum setup smaller than this, there should be at least 2 GB memory per user and 1 CPU core per 2-4 users in order to achieve acceptable performance. But as mentioned, these figures are highly dependent on the actual usage pattern and the acceptable degree of performance degradation upon peak loads. Only real life experience can tell which capacity is appropriate for a specific installation.

Please also refer to the considerations about memory requirements in sections 3.1.5 “Required Physical Memory Size” and 4.1.2.2 “Memory Allocation Balancing”, and to section 7.16 “Memory Management” for a detailed description on how SimCorp Dimension is being allocated memory in Windows.

An example of the terminal server solution is included in the block diagram presented in section 2.1.1 “SimCorp Dimension Set-up Example”.

SimCorp Dimension is also supported on Citrix XenDesktop, which is the SimCorp main platform for testing the client components of SimCorp Dimension.

Unlike Citrix XenApp Citrix XenDesktop provides a Windows client to the user, who is then not working on a Windows Server. In addition, no operating system features are shared between concurrent sessions, which speak for better stability and better performance predictability. When using XenDesktop the individual operating system adds to the memory requirements and a minimum of 4 GB is recommended.

Please refer to section 8.4 “Citrix Presentation Server/XenApp/Terminal Services” for known issues with regards to running SimCorp Dimension from a terminal server.

### 3.1.9 VMware

SimCorp is committed to reducing the costs of operating SimCorp Dimension. As part of this commitment SimCorp has support for clients running SimCorp Dimension under VMware's ESX Server virtualisation platform. SimCorp cannot provide support for VMware itself as a platform technology.

SimCorp is not aware of, nor has any reason to suspect, that SimCorp Dimension doesn't work on any of the other virtualisation platforms, but cannot commit to verifying the trouble free operation of SimCorp Dimension on other virtualization platforms than VMWare.

Most of SimCorp's third-party suppliers support the product when using virtualised environments but not all suppliers fully support their products in the VMWare environment. SimCorp cannot guarantee the timely correction of all issues found in these third-party components in a virtualised environment.

SimCorp regards the VMWare platform as any other hardware platform hosting SimCorp Dimension components. The virtualisation does add to the level of complexity that must be professionally managed in the system operations to guarantee the service levels and error free operation of SimCorp Dimension.

The processing that the virtual machine is expected to host, will obviously affect the requirements to that virtual machine just as it would on a traditional hardware platform. Sporadic degradation in performance of the platform with regards to available memory, available CPU capacity and increased I/O or network latency will result in the same issues in SimCorp Dimension that they would without the virtualisation.

One of the cost-saving benefits of a virtualised environment is the increased mobility of the virtual machines allowing a better utilisation of the hardware through time-sharing. Using this many-to-one ratio between virtual machines and physical host requires the hardware sizing has been done with consideration for the maximum load from the concurrent running machines. The load on the physical machine has to be planned such that resource shortages with regards to e.g. CPU, memory, disk I/O capacity and network capacity are avoided. The planning not only has to consider how many virtual machines the physical machine will host concurrently, but also what type of SimCorp Dimension processing those virtual machines will be used to execute.

Especially the database- and file servers are sensitive to intermittent increases in i/o- or network latency and attention to avoiding a setup where this situation could occur is advised.

The System Performance Check functionality in SimCorp Dimension can be used to verify that access to database and files are within the acceptable limits for the SimCorp Dimension product in the normal case, but are unlikely to reveal intermittent increase in response times.

Issues with SimCorp Dimension will be handled exactly as they would be in a physical environment when the issue is not related to the execution environment.

In cases where the issue is suspected to be caused by the execution environment, where the few cases that have been reported to SimCorp so far have all been caused by over-commitment of the physical host, SimCorp will request one or more of the following actions in falling order of likelihood:

- Documentation with regards to the load on the virtual machine, load on the physical machine and properties of the virtual machine. Relevant documentation with regards to load will normally be obtainable in the tools used for capacity management.
- Reproduction of issues, suspected to be symptoms of resource shortages caused by virtual machines sharing the same physical host, on a physical host which is not shared.

In the very rare case where the issue is suspected to be caused by the virtual environment not exactly mirroring the equivalent native environment, SimCorp may request a reproduction of the issue in a corresponding physical environment. If the issue cannot be reproduced on the physical environment, SimCorp will make reasonable efforts to address the issue, but is unable to guarantee a timely solution

A large part of the release test of SimCorp Dimension has been carried out on VMware at the following third party component versions:

| Component | Component version | | | Comments |
|---|---|---|---|---|
| | For v. 5.2 | For v. 5.3 | For v. 5.4 | |
| VMware ESX Server | 4.1 | 5.0 update 1 | 5.0 update 1 | Virtualization host servers used when testing SimCorp Dimension in a VMware deployment |
| VMware vCenter Server | 4.1 | 5.0 update 1 | 5.0 update 1 | Management server version used when testing SimCorp Dimension in a VMware deployment |

Please see: 3.1.1 “Platform Support Matrix “ for further information on which version to use with each supported version of SimCorp Dimension.

### 3.1.10 Mail System

SimCorp Dimension can send e-mails in various situations, for example when a SimCorp Dimension server or batch job process fails. These emails are sent using SMTP through .NET Framework functions and the solution does not require any further software components to be installed.

The Blat.exe and Mapisend components known from previous releases still reside in the Bin folder as they are being utilised during the installation or upgrade processes. However, these components are in use only for these processes.

Blat.exe is delivered together with the SimCorp Dimension executables but is a freely available tool which, when needed can be downloaded from http://www.blat.net.

During normal operation there is no longer support for MAPI, meaning that there is no longer a need for having Microsoft Outlook or similar installed for the mail system to work after the installation and upgrade has been conducted.

The needed configuration of the email setups has been described at 4.1.1 “Mail System Configuration”.

### 3.1.11 Network Communication

SimCorp Dimension uses the TCP/IP protocol for network communication. A 100 Mbit or faster network is required. If SimCorp Dimension clients are placed on a less than 100 Mbit network, the recommendation is to use Citrix. Please refer to section 3.1.8 “Citrix XenApp and XenDesktop”.

SimCorp Dimension is highly dependent on a responsive and fully functional network. When the application is executed from the central installation, quite large amounts of executable program code need to be transferred from the file server to the executing servers and workstations. Even a short loss of network connection may result in program execution failure; that is how Windows works when programs are executed over a network connection. A local installation of SimCorp Dimension reduces the network load but a responsive network is still needed for Oracle access, messaging (MUCS) and logging to central log files.

Recommendations:

- In high volume installations, and especially when the application is executed from the central installation, a 1 Gbps network (workstation, file server, application server, DB server) or higher is recommended.
- If you often experience errors due to instability in the network communication between the SimCorp Dimension execution host and the program file server it is recommended to use Local Installation.

### 3.1.12 Printers

There are no special printer requirements for SimCorp Dimension, provided that the printer is supported by Windows. If running SimCorp Dimension from a Citrix server, the printer must also be supported by Citrix.

In some cases, however, certain requirements must be met:

- A printer driver must be installed to be able to print grids and install and run reports in SimCorp Dimension.
- A standard printer must be set up in Windows Server 2008 R2 if using the Crystal Reports Runtime – also when the reports are not actually being printed. Otherwise various error messages can show up.

## 3.2 Standard Requirements

SimCorp Dimension requires standard equipped workstations, an Oracle database server a file server and a MUCS server. SimCorp Dimension application servers are required for some modules and optional for others depending on the functionality.

The recommended hardware listed in the tables later in this section should be considered when installing SimCorp Dimension or upgrading the hardware platform.

| **Note** | Deviations from the recommendations could result in reduced performance. |
|---|---|

SimCorp Dimension may run on less powerful hosts than the configuration stated in this chapter, but this is not recommended because SimCorp Dimension is a very large application, which together with virtually any other application will cause excessive paging on machines with insufficient amounts of RAM.

Please refer to the block diagrams presented in sections 2.1.1 for an overview of the configuration.

### 3.2.1 SimCorp Dimension Clients

The clients execute the SimCorp Dimension applications and certain third party software components.

| Workstation Hardware Recommendations | |
|---|---|
| **Processor** | 64-bit multi CPU/core Intel or AMD, in a technologically current CPU model for Workstations |
| **Memory** | Minimum 4GB RAM, higher if recommended for the chosen OS.<br>It should be noted that this is the requirement for SimCorp Dimension alone based on an average user. If user workstations are expected to run several applications in parallel then higher specifications should be considered. |
| **Disk** | Approx. 1,5 GB is required when using local installation.<br>When using the network installation, approx. 200 MB is needed on the client for the Crystal Reports runtime.*<br>Approx. 10 GB should be available for temporary files and troubleshooting purpose. |
| **Network card** | Ethernet network card required, 100 Mbps or faster |
| **Sound card/speakers** | Optional (required for audible alerts) |
| **Screen** | 19”. The recommended resolution is 1280x1024 pixels and the use of small fonts, except for clients running SimCorp Dimension Portfolio Workbench, Order Manager or Asset Manager where it is highly recommended to use at least one dedicated display of at least 1600x1200, for instance 1920x1200. |
| **Compliance** | It is recommended that new client hardware additionally complies with Microsoft’s “Windows 7 system requirements”** |
| **Performance** | It is recommended that the client yields a Windows Experience score of around 4.0 or better using the built in performance measurement tools in Windows Vista or Windows 7 |

* During installation of the Crystal Reports runtime approx. 500 MB additional disk space is needed for the installation process.
** Described at http://windows.microsoft.com/en-US/windows7/products/system-requirements

**Note** SimCorp Support requires remote access to the SimCorp Dimension infrastructure. The end point for the support connection should, as a minimum, follow the hardware and software recommendations for a workstation.

A SimCorp Dimension client workstation needs an operating system as described in section 3.1 “Technology Platform” as well as the following third party software components:

| Component | Component version | | | Comments |
|---|---|---|---|---|
| | For v. 5.2 | For v. 5.3 | For v. 5.4 | |
| SAP Crystal Reports runtime engine for .NET Framework 4 | 2011, 13.0.3.612, 64-bit** | 2011, 13.0.3.612, 64-bit** | 2011, 13.0.3.612, 64-bit | Runtime module which is included with the SimCorp Dimension installation – as an installation package: must be installed* |
| Microsoft .NET Framework | 3.5 SP1, 32-bit + 64-bit and 4.0, 32-bit + 64-bit | 3.5 SP1, 32-bit + 64-bit and 4.0, 32-bit + 64-bit | 3.5 SP1, 32-bit + 64-bit and 4.0, 32-bit + 64-bit | Minimum version that must be installed# |
| Oracle Call Interface | 11.2.0.1 | 11.2.0.3 | 11.2.0.3 | Oracle Call Interface (also known as “Instant Client”) is included with the SimCorp Dimension installation## |
| ODP.NET | 2.112.1.0 | 4.112.3.0 | 4.112.3.0 | Is included with the SimCorp Dimension installation |

* Crystal Reports 2011 requires a runtime package to be installed on all workstations and servers for installing and executing reports, as well as for printing from grids. Please find more information in section 3.3.4 “Crystal Reports Runtime”.

** Please be aware that Order Manager requires a different version of Crystal Report for SimCorp Dimension versions prior to 5.4 and that both versions are delivered with SimCorp Dimension and can coexist on the client computer.

# Due to some compatibility issues with third party software components, it is necessary to install both .NET Framework 3.5 SP1 and 4.0 both 32-bit and 64-bit editions. Please see: 3.1.1 “Platform Support Matrix “ for further information on which version to use with each supported version of SimCorp Dimension.

## Please refer to section 5.1 “Installation and Upgrade Considerations” for more details.

SimCorp develops and test using the latest service pack of the .NET Framework required for that SimCorp Dimension version. Due to natural constraints in the development planning process, this will not always be Microsoft’s latest service pack version at the time of release. SimCorp operates from the assumption that the service packs for a given version of the .NET Framework runtime are backwards compatible and that the

application of the service pack is not necessarily required in production environments. In the cases where this is found not to be the case, the required .NET Framework upgrade will be stated in the release note of the patch introducing this requirement.

The .NET Framework 4.0 Redistributable Package can be downloaded from here: http://www.microsoft.com/net/Download.aspx

| | |
|---|---|
| **Note** | To run SimCorp Dimension from a network drive the .NET Framework requires the same permissions as when running the application locally, that is "FullTrust". Please refer to section 4.1.3.1 "Configuring .NET" for more details. |

The following third party software components are needed in some cases, as described:

| Component | Component version | | | Comments |
|---|---|---|---|---|
| | For v. 5.2 | For v. 5.3 | For v. 5.4 | |
| Adobe Reader | 8.1.3 or higher | 8.1.3 or higher | 8.1.3 or higher | Must be installed in order to read the PDF version of the manuals |
| Crystal Reports | 2011 SP2, 14.0.2.364 | 2011 SP2, 14.0.2.364 | 2011 SP2, 14.0.2.364 | Needs to be installed on workstations where users develop reports – the runtime version of the software is included with the SimCorp Dimension installation |
| IBM WebSphere MQ Client for Windows | 7.0.1.2 or higher | 7.0.1.2 or higher | 7.0.1.2 or higher | Needs to be installed on the servers using IBM MQ technology |
| Microsoft Internet Explorer | 8, 9 or 7 | 8 or 9 | 8 or 9 | Must be installed in order to use the online help as well as on all clients and servers running **ORDER MANAGER** |
| Reuters SFC API | 4.6.1 | 4.6.1 | 4.6.1 | No installation is required as the API is included with SimCorp Dimension |
| Windows Help (WinHlp32.exe) | Version depends on Operating System | N/A * | N/A * | Install only if needed. From Windows Vista and onwards this file is no longer distributed with Windows and it will eventually be retired |
| Debugging Tools for Windows | 64-bit | 64-bit | 64-bit | Not included, but freely downloadable. SimCorp consultants might need these tools when troubleshooting. |

* From SimCorp Dimension 5.3, the documentation is delivered in a different format, and this file is therefore not needed.

Some additional comments on the third party software components:

- Please refer to http://support.microsoft.com/kb/917607/en-us for more information on WinHlp32.dll and how to get it. Applications and third party software components may need this file.
- Microsoft Debugging Tools for Windows is part of the Microsoft Windows SDK, which can be downloaded from here: http://www.microsoft.com/whdc/devtools/debugging/

### 3.2.2 SimCorp Dimension Application Servers

Application servers are used for various purposes, as described in section 2.1 “System Architecture”. They share the same basic requirements, as described below. However, some modules and third party software products have special requirements. These are listed in section 3.3 “Module Specific Requirements”.

| Server Hardware Recommendations | |
|---|---|
| **Processor** | Multi core Intel or AMD, in a technologically current CPU model for servers* |
| **Memory** | Minimum 4 GB pr. core, dependent on the configured WS size for the SimCorp Dimension server process and the chosen OS. |
| **Disk** | Approx. 850 MB is required when using local installation.<br>When using the network installation, Approx. 200 MB is needed on the server for the Crystal Reports Runtime**<br>Approx. 10 GB should be available for temporary files and troubleshooting purpose.<br>From SimCorp Dimension version 5.3 approx. 4 GB is needed for the help system***. Please note it is 4 GB for each language. |
| **Network card** | Ethernet network card required, 100 Mbps or faster.<br>In some installations a faster (1 Gbps) network is recommended. Please refer to section 3.1.11 “Network Communication” for more information |

* Experience from installations indicates that AMD processors are less suited for running SimCorp calculation servers due to performance issues. Please be aware of this issue and try out an Intel based setup if performance issues are experienced.
** During installation of the Crystal Reports Runtime approx. 500 MB additional disk space is needed for the installation process.
*** The approx. Size estimate is based on a block size of 4096 bytes. Due to the large number of smaller files the block size influences the actual disk usage. (A block size of 8192 Bytes will cause the documentation and help system to use approx. 3.5 GB on disk).

A SimCorp Dimension application server needs a server operating system as described in section 3.1 “Technology Platform” as well as the following third party software components:

| Component | Component version | | | Comments |
|---|---|---|---|---|
| | For v. 5.2 | For v. 5.3 | For v. 5.4 | |
| SAP Crystal Reports runtime engine for .NET Framework 4 | 2011, 13.0.3.612, 64-bit ** | 2011, 13.0.3.612, 64-bit ** | 2011, 13.0.3.612, 64-bit | Runtime module which is included with the SimCorp Dimension installation – as an installation package: must be installed* |
| Microsoft .NET Framework | 3.5 SP1, 32-bit and 64-bit and 4.0, 32-bit and 64-bit | 3.5 SP1, 32-bit and 64-bit and 4.0, 32-bit and 64-bit | 3.5 SP1, 32-bit and 64-bit and 4.0, 32-bit and 64-bit | Must be installed |

* Crystal Reports requires a runtime package to be installed on all workstations and servers for installing and executing reports, as well as for printing from grids. Please find more information in section 3.3.4 “Crystal Reports Runtime”.
** Please be aware that Order Manager requires a different version of Crystal Report for SimCorp Dimension versions prior to 5.4 and that both versions are delivered with SimCorp Dimension and can coexist on the client computer.

Oracle Streams Advanced Queuing is needed for systems configured with a Communication Server (must be configured on the Oracle instance for installations using the Communication Server).

It is possible to start more than one SimCorp Dimension server process on the same physical host, provided that the hardware resources support it. The amount of processors and memory must be scaled accordingly.

The exact amount of server processes required to operate SimCorp Dimension is determined by the type of business and their requirements. The above mentioned host configuration should be seen as a basic unit. In order to calculate the exact amount of units required to sustain an entire SimCorp Dimension installation a technical hardware sizing study must be performed.

| | |
|---|---|
| **Note** | SimCorp recommends using the local installation option for production batch and application servers. The recommendation is due to an increasing number of issues generated by long running processes temporarily losing network connection which the Windows execution environment is not tolerant towards. Constant and uninterrupted network connection is required to ensure stability in long running processes executing from a central installation. Newer versions of Windows appear less tolerant in this regard than XP and Win 2003. |

In addition please refer to section 7.16 “Memory Management”.

A SimCorp Dimension application server needs an operating system as described above as well as the same set of third party software components as listed for the SimCorp Dimension client workstation.

For more information on running SimCorp Dimension server processes, please refer to section 6.6.2 “Application Servers”.

A SimCorp Dimension server process can be installed to run as a service. Please refer to section 6.6.3 “Server as a Windows Service” for further details.

Some SimCorp Dimension servers are running as hosted services under the .NET Framework. Please refer to section 6.6.3 “Server as a Windows Service”.

The SimCorp Dimension Message and User Control System (MUCS) is a special server process coordinating internal messaging between SimCorp Dimension sessions. Please refer to section 4.2.2 “Message and User Control System (MUCS)” for more information on the MUCS server.

### 3.2.3 File Server

SimCorp Dimension requires its program files and various style log files stored in a central network location reachable from all hosts running SimCorp Dimension sessions. The file server hosts the SimCorp Dimension Central Network Installation folder structure and files. A more detailed description can be looked up in section 7.7 “Folder Structure” and section 5.1.3 “Use of ROOT for File Placement”.

SimCorp Dimension does not run on this server. It acts as a file server and shortcuts to the SimCorp Dimension program files are placed and run on workstations and application servers.

| File Server Hardware Recommendations | |
|---|---|
| **Processor** | Multi-core Intel or AMD, in a technologically current CPU model for servers |
| **Memory** | The recommended amount of RAM is that required by the chosen OS, at a minimum 4 GB |
| **Disk** | One single-language SimCorp Dimension installation requires approx. 2.5 GB disk storage (in a RAID 5 disk set-up which is recommended), plus space for system log files, which is dependent on configuration. Please refer to section 6.1.10.2 “SimCorp Dimension System Log Files” for more information |
| **Network card** | Ethernet network card required, 100 Mbps or faster.<br>In some installations a faster (1 Gbps) network is recommended. Please refer to section 3.1.11 “Network Communication” for more information |

A SimCorp Dimension file server needs a server operating system as described in section 3.1 “Technology Platform”.

**Note** SimCorp does not support the installation of SimCorp Dimension on a virtual mounted PC file system disc on a UNIX box due to incompatibility problems in low-level file I/O

SimCorp Dimension must not be installed directly into a share or at the drive-root.

Please be aware, as a SimCorp Dimension session is run by accessing its program files remotely, in real time, the network path to and response time from the file server is essential to the stability of the session. Any loss in network communication to the file server or peak load on the file server could cause a SimCorp Dimension session to fail. It is therefore recommended that SimCorp Dimension is given a dedicated file server.

For systems expecting a large load (in terms of server processing, batch job execution and users sessions) please consider to redirect files which are modified/created during execution from the SimCorp Dimension program (read-only) files.

For more information on how to configure this, please refer to section 4.2.1.2 “Redirection of Common Write Access Folders”. In addition please refer to the Windows known issue in section 8.8.2 “Avoid Many Files in Single Folders on the File Server”.

| | |
|---|---|
| **Note** | The file server should be dedicated to service the I/O requests for the SimCorp Dimension sessions. Therefore it is not recommended to run SimCorp Dimension sessions (incl. MUCS server, SimCorp Dimension services or batch jobs) directly on the file server. |

### 3.2.4 Database Server

The configuration of a database server is highly depending on the work load and usage pattern. The below hardware recommendations are based on general experience from SimCorp Dimension installations, but since every installation is special an analysis should be made to scale the server as needed.

| Database Hardware and Operating System Recommendations | |
|---|---|
| **Processor** | 64-bit, technologically current, Intel, RISC or other CPUs supported by Oracle, with a minimum of four CPU cores |
| **Memory** | 24 GB as a minimum, but highly dependent on the configuration and use of SimCorp Dimension. This is described further in the ***Preferred Oracle Configuration*** manual (please refer to the section headed “Memory Sizing”) |
| **Disk** | Internal disks with enough space available for operating system files, Oracle binaries and swap, plus a data storage solution for Oracle data. Please refer to Preferred Oracle Configuration manual, the section on storage, for more information. |
| **Network** | In most installation a fast (min 1 Gbps) network backbone is recommended. Please refer to section 3.1.11 “Network Communication” for more information |
| **Operating system** | Microsoft Windows or UNIX variant supported by Oracle for the actual Oracle RDBMS version.<br>SimCorp Dimension is hardware/OS platforms indifferent when it comes to the Oracle database. Oracle does not release updates and patches on all platforms simultaneously. Given that some Oracle updates/patches are mandatory for running SimCorp Dimension, clients are advised to select a hardware/OS platform that is well supported by Oracle |

| Database Hardware and Operating System Recommendations | |
|---|---|
| RDBMS | Oracle Enterprise or Standard Edition (please refer to section 3.2.4.1 “Features Requiring Oracle Enterprise Edition”).<br>Version and patch level as specified in section 3.1.1 “Platform Support Matrix” and 3.1.4 “Oracle RDBMS Patches” |

The storage required highly depends on the transaction volume and the size of audit data. Similarly, the demand for RAM and CPU depends on the usage pattern for the system.

#### 3.2.4.1 Features Requiring Oracle Enterprise Edition

SimCorp Dimension is supported on both Oracle Standard and Enterprise editions. However for SimCorp Dimension version 5.4 the following modules/functionality requires Oracle Enterprise Edition:

- External Data Access
- Parallel query/execution (see section 4.2.1.6 “Parallel Options”)
- Active Data Guard/Real Time Query option for reporting (additionally requires the Oracle EE license option “Active Data Guard”)
- Compress external tables during archiving (additionally requires the Oracle EE license option “Advanced Compression”)
- The partitioning modules for SimCorp Dimension tables (additionally requires the Oracle EE license option “Partitioning”)

#### 3.2.4.2 Oracle RAC (Real Application Cluster)

SimCorp Dimension is from version 5.2 supported on Oracle RAC. There are some considerations to take in regards to configuration when choosing to use Oracle RAC as a platform for SimCorp Dimension. Please refer to the SimCorp Dimension Preferred Oracle Configuration manual for more detail. The minimum Oracle software version, patch set and one off patches must be as specified in section “3.1.4 Oracle RDBMS Patches”. In addition please refer to: 8.9.18 “Scheduled Tasks May Freeze on RAC due to Undetected Deadlock”.

#### 3.2.4.3 Oracle TAF (Transparent Application Failover)

This feature is not supported by SimCorp Dimension and must not be enabled. If it is enabled, the SimCorp Dimension session will not be able to start.

This Oracle feature only supports simple fail over of stateless applications. SimCorp Dimension database sessions are stateful using PL/SQL package variables, alter session statements and more none of which is supported with Oracle TAF.

| Note | It is not possible to start SimCorp Dimension if TAF is enabled for the session. |
|---|---|

#### 3.2.4.4 Oracle Streams Advanced Queuing

Oracle Streams Advanced Queuing is needed for systems configured with a Communication Server (must be configured on the Oracle instance for installations using the Communication Server).

## 3.3 Module Specific Requirements

This section shows the requirements for SimCorp Dimension modules with special needs as well as the requirements for third party software components delivered by SimCorp.

SimCorp Dimension is being release tested with the third party software versions stated in this section on platforms corresponding to the requirements stated in section 3.2 “Standard Requirements”. Deviations from these third party software versions should only be made after verification with SimCorp.

| | |
|---|---|
| **Note** | The client is responsible for providing the system environment necessary for running SimCorp Dimension – this includes the software elements listed below as well as other prerequisite software. Licenses for the listed software elements and other prerequisite software are not included with SimCorp Dimension unless specifically mentioned. |

### 3.3.1 APTServerXml Interface

APTServerXML is a separate product to be purchased and installed by the client. SimCorp has made an interface that works through a Communication Server setup.

The APTServerXML interface is making use of the following third party software components:

| Component | Component version | | | Comments |
|---|---|---|---|---|
| | For v. 5.2 | For v. 5.3 | For v. 5.4 | |
| APTServerXML | 6.56 or higher | 6.56 or higher | 6.59 or higher<br>32-bit or<br>64-bit | May be installed on the Communication Server host or on a separate server |
| JRE (Java Runtime Environment) | 1.6 or later, 64-bit | 1.6 or later, 64-bit | 1.6 or later, 64-bit | Needs to be installed where the APT server is installed in order to use the eXtended Data Base (XDB) functionality |

Since APTServerXML is a separate product supported by a separate vendor it might be considered appropriate to install it on a separate server. If so wished, however, the utilised SimCorp Dimension Communication Servers could also be installed on the same server hardware. For more information on advantages and disadvantages of such a solution please contact your SimCorp representative.

In order to allow the interface to work at its best, please choose to install the APTServerXML for **Everyone**, when asked by the installation program.

### 3.3.2 Australian CGT Calculator

The Australian CGT Calculator is making use of the following third party components, installed on a SimCorp Dimension client or application server:

| Component | Component version | | | Comments |
|---|---|---|---|---|
| | For v. 5.2 | For v. 5.3 | For v. 5.4 | |
| JRE (Java Runtime Environment) | 1.6 or later, 64-bit | 1.6 or later, 64-bit | 1.6 or later, 64-bit | Needs to be installed on the workstations and servers running the Australian CGT Calculator |

As the Oracle Instant Client is also being utilised, it is important to ensure that both the JRE and the Instant Client are 64-bit.

| Note | Due to an error in the 64-bit JRE installer it may happen that the registry settings made by the installer, showing paths to the installed files, do not correspond with the actual placement of the files. In case of any problems it is recommended to check this and correct the settings as needed. |
|---|---|

### 3.3.3 BIRT Spreadsheet

The BIRT Spreadsheet was formerly known as Actuate e.Spreadsheet. It is delivered as a separate installation. For more information, please contact your SimCorp representative.

### 3.3.4 Crystal Reports Runtime

The Crystal Reports Runtime requires a runtime package to be installed on all workstations and servers for installing and executing reports, as well as for printing from grids. The runtime will be copied to `the \AddOns\CrystalSetup` folder during the installation of SimCorp Dimension, but needs a separate installation activity for each client and server on which it is to be used.

The package can be installed on a standard SimCorp Dimension client and contains all the components needed. No extra prerequisites need to be installed.

Please refer to sections 3.2.1 “SimCorp Dimension Clients” and 3.2.2 “SimCorp Dimension Application Servers”.

### 3.3.5 FIX.NET Server

The FIX.NET Server with SQL Server is used by the SimCorp Dimension **ORDER MANAGER** module and must be installed along with it.

| FIX.NET Server Hardware and Operating System Recommendations | |
|---|---|
| Processor | 64-bit Intel or AMD, in a technologically current CPU model for servers with a minimum of 4 CPU cores. |
| Memory | The minimum recommended amount of RAM is that required by the OS plus an additional 6 GB to cover the 3 Order Manager Server components. |
| Disk | 500 MB |
| Network card | Ethernet network card required, 100 Mbps or faster* |

| FIX.NET Server Hardware and Operating System Recommendations | |
|---|---|
| **Database** | Microsoft SQL Server, as listed in the matrix below |

* In some installations a faster (1 Gbps) network is recommended. Please refer to section 3.1.11 "Network Communication" for more information.
** Only 64-bit OS supported. Service pack levels as described in section 3.1.1 "Platform Support Matrix".

Microsoft SQL Server should be in one of the following versions:

| FIX.NET Server Platform Technology | | Rel. 5.2 | Rel. 5.3 | Rel. 5.4 |
|---|---|---|---|---|
| Database | Microsoft SQL Server 2005 SP4* | ✓ | ✓ | ✓ |
| | Microsoft SQL Server 2008 R2 SP1* | ✓ | ✓ | ✓ |
| | Microsofl SQL Server 2012 | ○ | ○ | ✓ |

* Standard, Enterprise and Datacenter editions are all supported.

Please find a description of the symbols used in section 1.7 "Key to Support Matrix".

| **Note** | Please be aware that the FIX.NET Server and the Coric product suite has different requirements for database collation, which must be considered if both are to be sharing the same SQL Server. |
|---|---|

The FIX.NET Server additionally needs a server operating system as described in section 3.1 "Technology Platform" and the following third party components:

| Component | Component version | | | Comments |
|---|---|---|---|---|
| | For v. 5.2 | For v. 5.3 | for v. 5.4 | |
| **Microsoft MDAC** | 2.8 or above | 2.8 or above | 2.8 or above | Needs to be installed on the server running the **ORDER MANAGER** FIX.NET Server fix engine package |
| **Microsoft Windows PowerShell** | 2.0* | 2.0* | 2.0* | Needed during installation |
| **Microsoft XML Core Services** | 4.0 SP1 | 4.0 SP1 | 4.0 SP1 | Required for the **ORDER MANAGER** FIX.NET Server fix engine package – supplied as part of the Order Manager installation |

* Included with Windows 7 and Windows Server 2008 R2. For information on how to install on other Windows versions, please refer to http://support.microsoft.com/kb/968929.

### 3.3.6 SimCorp Dimension help system

Besides the content (html) files, the help system includes a number of jscript files, which control the help system user interface, search, index and table of contents.

Depending on your current security settings in Internet Explorer and the location of the help system, the help system opens in one of the following Internet Explorer Security zones:

- Local Intranet
- Trusted sites

To ensure that users can access and use the help system, the following Internet Explorer security settings must be set in the security zone that is used:

- Run ActiveX controls and plug-ins: **Enable**
  - By default this option is set to **Enable** in the Local Intranet and Trusted sites zones in Internet explorer.
  - If this option is set to **Disable**, the help system will not display.
  - If this option is set to **Prompt**, the users will get the following message: "You want to allow software such as ActiveX and plug ins to run?".
- Active Content: **Enable**
  - By default this option is set to **Enable** in the Local Intranet and Trusted sites zones in Internet explorer.
  - If this option is set to **Disable**, the help system will not display.
  - If this option is set to **Prompt**, the users will get the following message: "Scripts are usually safe. Do you want to allow scripts to run?".

### 3.3.7 Order Manager

**ORDER MANAGER** (OM) is a SimCorp Dimension module for Front Office use. This section specifies the hardware and OS recommendation for the OM Client and the OM Server Components.

The hardware and OS requirements for **ORDER MANAGER** Clients are identical to those described in section 3.2.1 “SimCorp Dimension Clients”.

| OM Server Components Hardware Recommendations | |
|---|---|
| **Processor** | 64-bit dual core Intel or AMD, in a technologically current CPU model for servers |
| **Memory** | The minimum recommended amount of RAM is that required by the OS plus an additional 2 GB RAM for the OM server application |
| **Disk** | Approx. 10 GB needed on local disk for server application, logs and all pre-requisites |
| **Network card** | Ethernet network card required, 100 Mbps or faster.<br>In some installations a faster (1 Gbps) network is recommended. Please refer to section 3.1.11 “Network Communication” for more information |

The OM Server additionally needs a server operating system as described in section 3.1 “Technology Platform”.

| Note | The database schema of **ORDER MANAGER** is functionally integrated with the main SimCorp Dimension schema and must be installed in the SimCorp Dimension database. Please note the required Oracle patches to be able to use **ORDER MANAGER** |
|---|---|

For further information on the Order Manager components, please refer to the manual ***Front Office Implementation Guide*** available in the online help and from Client Support site.

In addition to the components described in section 3.2.1 "SimCorp Dimension Clients" the **ORDER MANAGER** module is making use of the following third party components:

| Component | Component version | | | Comments |
|---|---|---|---|---|
| | For v. 5.2 | For v. 5.3 | For v. 5.4 | |
| FIX.NET Server | 5.1, 64-bit | 5.1, 64-bit | 5.4, 64-bit | Needs to be installed on either the **ORDER MANAGER** server or another standalone server. Supplied as a separate prerequisite installation package |
| Mantara Elvin Client Library | 4.4.2 | 4.4.2 | 4.4.2 | Required for the **ORDER MANAGER** server. Provided by SimCorp at installation/upgrade |
| Mantara Elvin Message Router | 4.4.2 | 4.4.2 | 4.4.2 | Required for the **ORDER MANAGER** server. Provided by SimCorp at installation/upgrade |
| Oracle Services for Microsoft Transaction Server Components | 11.2.0.2.1 (64 bit)* | Separate installation not required. Deployed as part of SimCorp Dimension upgrade process. | Separate installation not required. Deployed as part of SimCorp Dimension upgrade process. | Where required this needs to be installed on the server/s running **ORDER MANAGER** server components |

* Available in the 64-bit ODAC 11.2 Release 3 (11.2.0.2.1) for Windows x64.

The Open Bloomberg Terminal application must be installed and operational on client workstations in order to access market data within **ORDER MANAGER**, and for dealer limits to operate. The Bloomberg real-time interface running with **ORDER MANAGER** requires that it is installed on physical machine and not any virtual platform.

| Note | Whilst OM is supported on Citrix this cannot be used where a Bloomberg data feed is required as it would invalidate the Bloomberg licence agreement. |
|---|---|

### 3.3.8 Report Book Manager

The **REPORT BOOK MANAGER** module requires a set of Windows servers for hosting the Coric server components and optionally one or more Windows clients for Coric's client tools for monitoring and report development. The solution use, among others, the following third party components:

| Component | Component version | | | Comments |
|---|---|---|---|---|
| | For v. 5.2 | For v. 5.3 | For v. 5.4 | |
| Coric product suite* | 9.0 | 9.5 | 10.0 | Required in a designated Coric environment |
| Report Book Manager Configuration | 2.6.7 | 2.7.11 | 2.8.x | The component is a SimCorp specific subcomponent for Coric product suite and installed as part of the Coric product suite |

* The Coric product suite includes and requires additional third party components, of which some must be purchased separately. For further information on the Coric product suite, please refer to the document ***SimCorp Dimension Report Book Manager – System Administrator's Manual***.

The Coric product suite requires access to a Microsoft SQL Server for configuration and system data and access to the SimCorp Dimensions Oracle database for system data

The below table lists the Coric product suites components and where the component is deployed. Additional components are installed as part of the Coric installation process and additional decisions are needed when deploying the Coric environment. Please refer to ***Report Book Manager 2.8 System Administrator's Manual*** for further details.

| The Coric product suite components | | Comments |
|---|---|---|
| Coric BPM Design Studio (BPM) | | Server component. |
| Coric Straight Through Reporting (STR) | | Server and client component. |
| | STR Data Mapper | Server and client component. |
| | STR Layout Builder | Server and client component. |
| | STR Production Control | Server and client component. |
| | STR Push Pull | Server component. |
| Coric Control Panel (CCP) | | Server and client component. |
| Standard Jobs | | Server component. |
| Coric Document Warehouse (DWH) | | Server component running on an Internet Information Server. |
| SimCorp Client Reporting | | Server component. |
| Reporting Portal | | Server component running on an Internet Information Server. |
| Workflow | | Server component. |

### 3.3.8.1 Platform Support Matrix for Coric

The matrix below shows which platform components the supported releases of SimCorp Dimension currently are supported on – the platform components themselves are not supported by SimCorp.

When a service pack level is shown it means that this is the supported service pack level, used in most SimCorp test environments. If the vendor support for a service pack has ended, SimCorp Dimension is no longer supported with it unless otherwise specified.

Microsoft released security updates can be applied when needed.

| Platform Technology | | Rel. 5.2 | Rel. 5.3 | Rel. 5.4 |
|---|---|---|---|---|
| Client | Windows 7 Enterprise SP0 – 64-bit | ✓ | ✓ | ✓ |
| | Windows 7 Enterprise SP1 – 64-bit | ✓ | ✓ | ✓ |
| | Windows 7 Professional SP0 – 64-bit° | ✓ | ✓ | ✓ |
| | Windows 7 Professional SP1 – 64-bit° | ✓ | ✓ | ✓ |
| | Windows 8 | ✗ | ✗ | ✗ |
| Server | Windows Server 2003 R1 SP2 – 64-bit | ○ | ○ | ○ |
| | Windows Server 2003 R2 SP2 – 64-bit | ○ | ○ | ○ |
| | Windows Server 2008 R1 SP2 – 64-bit | ✓ | ○ | ○ |
| | Windows Server 2008 R2 SP0 – 64-bit | ✓ | ✓ | ✓ |
| | Windows Server 2008 R2 SP1 – 64-bit | ✓ | ✓ | ✓ |
| | Windows Server 2012 | ✗ | ✗ | ✗ |
| SQL Server 64-bit | Microsoft SQL Server 2005 SP3 | ○ | ○ | ○ |
| | Microsoft SQL Server 2005 SP4* | ○ | ○ | ○ |
| | Microsoft SQL Server 2008 R1 RTM* | ○ | ○ | ○ |
| | Microsoft SQL Server 2008 R1 SP1* | ○ | ○ | ○ |
| | Microsoft SQL Server 2008 R1 SP2* | ○ | ○ | ○ |
| | Microsoft SQL Server 2008 R1 SP3* | ✓ | ✓ | ✓ |
| | Microsoft SQL Server 2008 R2 RTM* | ✓ | ✓ | ✓ |
| | Microsoft SQL Server 2008 R2 SP1* | ✓ | ✓ | ✓ |
| DBMS | Oracle 11g R2 Standard | ✓ | ✓ | ✓ |
| | Oracle 11g R2 Enterprise | ✓ | ✓ | ✓ |
| Other | **.NET Framework** | | | |
| | Microsoft .NET Framework 2.0 - 32/64-bit | ✓ | ✓ | ✓ |
| | Microsoft .NET Framework 3.5 - 32/64 bit | ✓ | ✓ | ✓ |
| | Microsoft .NET Framework 4.0 - 32/64-bit | ✓ | ✓ | ✓ |
| | Microsoft .NET Framework 4.5 | ○ | ○ | ○ |
| | **Microsoft Office** | | | |
| | Microsoft Office 2010 | ○ | ○ | ○ |
| | Microsoft Office 2007 SP2 | ✓ | ✓ | ✓ |

| | | | | |
|---|---|---|---|---|
| | **Microsoft XML Core Services** | | | |
| | Microsoft XML Core Services v.6.0 | ✓ | ✓ | ✗ |
| | Microsoft XML Core Services v.4.0 sp2 | ○ | ○ | ✗ |
| | **Microsoft Internet Explore** | | | |
| | Internet Explorer 7.0 | ○ | ○ | ○ |
| | Internet Explorer 8.0 | ✓ | ✓ | ✓ |
| | Internet Explorer 9.0 | ○ | ○ | ○ |
| | **Microsoft Data Sources ODBC Driver** | | | |
| | SQL Server Native Client v10 | ✓ | ✓ | ✓ |
| | SQL Native Client | ○ | ○ | ○ |
| | **Printers** | | | |
| | Archae XML Printer v3.5[1] | ✓ | ✓ | ✓ |
| | HP Colour LaserJet 2800 Series PS | ✓ | ✓ | ✓ |
| | Microsoft XPS Document Writer | ✓ | ✓ | ✓ |
| | Xerox XPrint 4920/4925 PS | ✓ | ✓ | ✓ |
| | **Neevia docCreator** | | | |
| | Neevia DocCreator ActiveX v4.1 | ✓ | ✓ | ✓ |
| | Neevia DocCreator ActiveX v4.0 | ✗ | ✗ | ✗ |
| | **Other** | | | |
| | Microsoft Internet Information Server v7 | ✓ | ✓ | ✓ |

Coric needs both the 32-bit and the 64-bit editions of the .NET Framework.

Microsoft Server Standard and Enterprise editions are supported.

Please find a description of the symbols used in section 1.7 “Key to Support Matrix”.

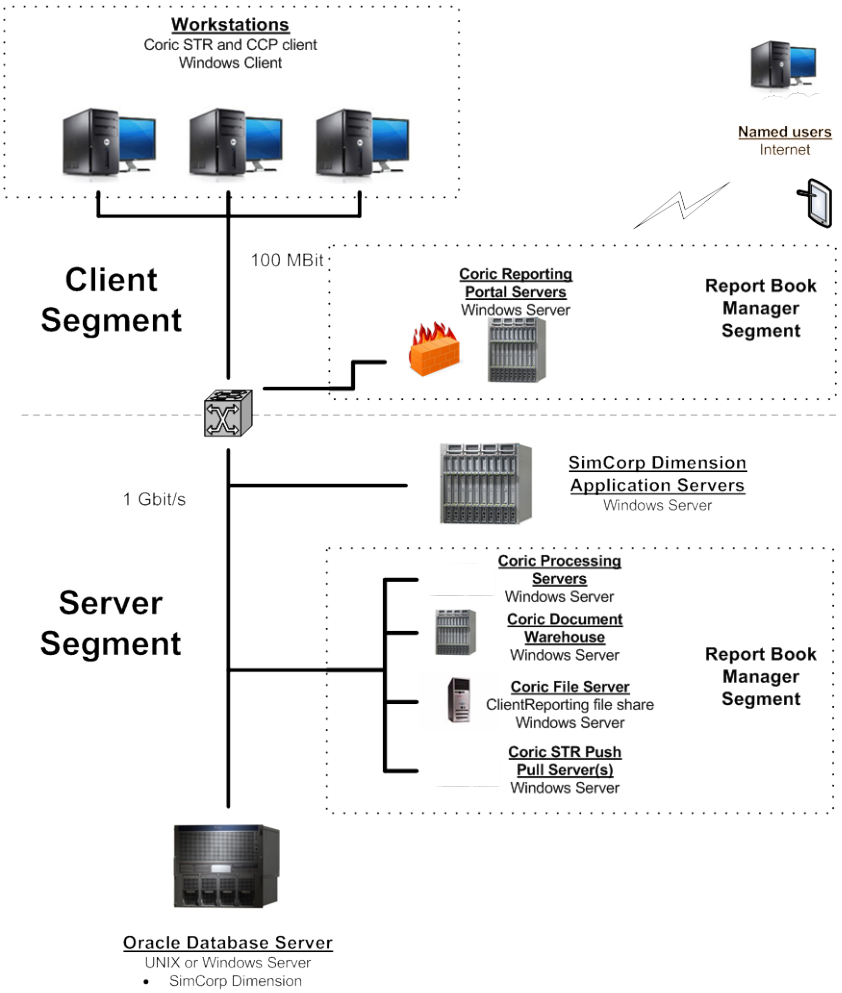
**Note** Please be aware that the FIX.NET Server and the Coric product suite has different requirements for database collation, which must be considered if both are to be sharing the same SQL Server.

Coric preferred collation is Latin1_General_BIN and provides optional support for Latin1_General_CI_AS.

[1] For more information on the Archae XML Printer drive and how to obtain the printer driver please contact your SimCorp representative.

### 3.3.8.2 Coric environment

The Report Book Manager environment consists of the following components:



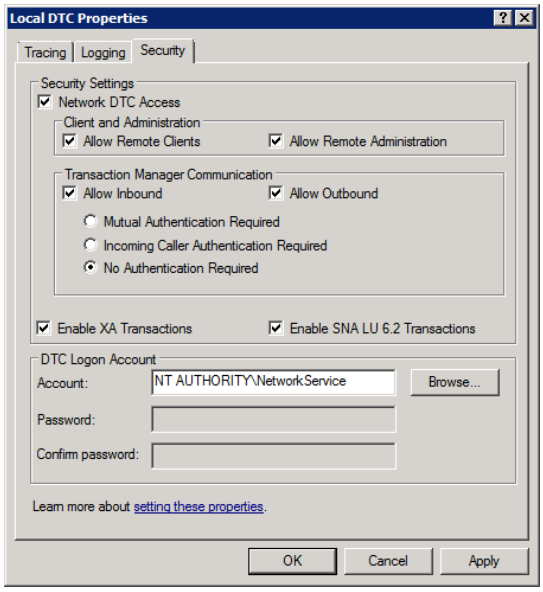

### 3.3.8.3 Coric Servers and clients

A number of prerequisites must be met when interfacing the Coric Product suite with SimCorp Dimension. The following sections describe the prerequisites for the servers and the clients.

#### 3.3.8.3.1 Microsoft SQL Server databases supporting Coric

Report Book Manager utilises a set of databases, these can either be hosted on a dedicated or a shared SQL Server.

| SQL Server Prerequisites | | |
|---|---|---|
| **Hardware** | **Processor** | x86 or x64 Multi Core Intel® or AMD, in a technologically current CPU model |
| | **RAM** | Minimum 4 GB |
| | **Hard disk space** | Internal disks with enough space available for operating system files. Microsoft SQL Server Database files on external disk system, optimized for high availability and consistency |
| **Application** | SQL Server | |
| **Windows Server Roles and Role Services** | Roles<br>• Application Server<br>Role Services<br>• .NET Framework<br>• COM+ Network Access<br>• Distributed Transaction<br>o Incoming Remote Transactions<br>o Outgoing Remote Transactions | |
| **Features** | • .NET Framework 3.5.1 Features<br>o .Net Framework 3.5.1 | |

<table>
<tr><th colspan="3">SQL Server Prerequisites</th></tr>
<tr><td>Component Configuration</td><td colspan="2">Required Local DTC Security settings:<br>• Enable Network DTC Access<br>• Client and Administration<br>o Allow Remote Clients<br>o Allow Remote Administration<br>• Transaction Manager Communication<br>o Allow Inbound<br>o Allow Outbound<br>o Choose Authentication method<br>Note Authentication settings on SQL Server Database and Document Warehouse Server must be analogous.<br>• Enable XA Transactions<br> 
</td></tr>
<tr><td>SQL Server</td><td>Databases</td><td>BPM<br>CCP<br>ClientReporting<br>DATA<br>STR<br>WAREHOUSE<br>Workflow<br>HEXACOM (optional)[2]</td></tr>
</table>

[2]HEXACOM database is used for Coric's tutorial

| SQL Server Prerequisites | | |
|---|---|---|
| | Database access | The Coric service account must be the SQL server sysadmin or have dbo access to the prerequisite databases.<br>AD Users/Groups accessing STR requires access to STR, DATA and temp databases. Access can be granted through the **SimCorp Client Reporting** database role, which is accessible post installation. |
| | Database collation | Supported collations: **Latin1_General_BIN**[3] and **Latin1_General_CI_AS.** |
| | Recovery Model | Set the **Recovery Model** to **Simple** on the WAREHOUSE database during installation. |

#### 3.3.8.3.2 Coric Document Warehouse Server

Report Book Manager stores the report books in the Coric Document Warehouse, which is a WEB based application.

| Coric Document Warehouse Server Prerequisites | | |
|---|---|---|
| Hardware | Processor | x86 or x64 Multi Core Intel® or AMD, in a technologically current CPU model |
| | RAM | Minimum 4 GB |
| | Hard disk space | High performance internal disks with sufficient space for operating system, application files and temporary files. Application files are defined as application binaries and application data, e.g. report books.<br>Optionally a dedicated file server can host the application data. |
| Installation | Installation Privileges on Windows | The Coric application required to be installed under a Windows domain user account with full administrative privileges. The same account is required to run Coric Document Warehouse's COM+ Application. |

[3] Latin1_General_BIN is the preferred collation for performance reasons.

| Coric Document Warehouse Server Prerequisites | |
|---|---|
| **Windows Server Roles and Role Services** | Roles<br>• Application Server<br>• Web Server<br>• File Services (optional)[4]<br>Role Services<br>• .NET Framework<br>• Web Server (IIS) Support<br>• COM+ Network Access<br>• Distributed Transaction<br>  o Incoming Remote Transactions<br>  o Outgoing Remote Transactions<br>• Web Server<br>  o Common HTTP Features<br>  o Default Document<br>• Application Development<br>  o ASP.NET<br>  o .NET Extensibility<br>  o ASP<br>• Security<br>  o Windows Authentication<br>• Management Tools<br>  o IIS Management Console<br>  o IIS 6 Management Compatibility<br>  • IIS 6 Metabase Compatibility |

[4] The File Services option is required, when Report Book Manager file shares are located on the Document Warehouse Server.

| Coric Document Warehouse Server Prerequisites | |
|---|---|
| **Component Configuration** | Required Local DTC Security settings:<br>• Enable Network DTC Access<br>• Client and Administration<br>o Allow Remote Clients<br>o Allow Remote Administration<br>• Transaction Manager Communication<br>o Allow Inbound<br>o Allow Outbound<br>o Choose Authentication method<br>**Note** Authentication settings on SQL Server Database and Document Warehouse Server must be identical.<br>• Enable XA Transactions |
| **Other components** | Microsoft Data Sources ODBC Driver |
| **Environment** | Verify file share and subfolders:<br>• Verify the existence of the file share: **\\<Document Warehouse Server>\ClientReporting**<br>• Verify the existence of subfolders listed below relative to **ClientReporting**<br>1. FPL<br>2. Images<br>3. vOUT<br>4. vVERSION<br>Verify the existence of the file share: **\\<Document Warehouse Server>\Workflow** |

### 3.3.8.4 Coric Processing Servers

Report Book Manager utilises a number of servers for the report book production. In a standard deployment, four servers are configured. One marshaller for controlling the scheduling process and three drones for execution. For scaling purposes additional drones can be added.

| Coric BPM, STR and CCP Server Prerequisites | | |
|---|---|---|
| **Hardware** | **Processor** | x86 or x64 Single Core Intel® or AMD, in a technologically current CPU model |
| | **RAM** | 4 GB minimum |
| | **Hard disk space** | High performance internal disks with sufficient space for operating system, application files and temporary files |
| **Installation** | **Installation Privileges on Windows** | The Coric application required to be installed under a domain Windows user account with full local administrative privileges. The account is required to have full access rights to create public message queues. The same account is required to run Coric Windows services. |
| **Windows Server Roles and Role Services** | Roles:<br>• Application Server<br>Role Services:<br>• .NET Framework | |
| **Features** | • NET Framework 3.5.1 Features<br>o .NET Framework 3.5.1<br>• Message Queuing<br>o Message Queuing Services<br>▪ Message Queuing Server<br>▪ Directory Service Integration<br>▪ Routing Service | |

| Coric BPM, STR and CCP Server Prerequisites | |
|---|---|
| **Other components** | Microsoft Office<br>• Word<br>• Excel<br>• PowerPoint<br>• Outlook<br>**Note** It's only required to install the Office components used in the implementation.<br>SMTP / Microsoft Exchange access<br>**Note** Workflow requires SMTP and do not support Microsoft Exchange.<br>POP3 access<br>**Note** Workflow module specific requirement.<br>Microsoft Data Sources ODBC Driver<br>Microsoft Internet Explorer<br>Neevia docCreator with image pack<br>**Printers** Archae XML Printer<br>HP Colour LaserJet 2800 Series PS<br>Microsoft XPS Document Writer<br>Xerox XPrint 4920/4925 PS |
| **Environment** | Create folder structure on Marshaller and Drones<br>• **C:\temp\errorlog**<br>• **C:\temp\Attachments**<br>• **C:\temp\Archae**<br>**Note** The **temp** folder can alternatively be placed on another drive.<br>The Marshaller and drones requires having the same directory structure created.<br>Create **WAREHOUSE** and **DATA** System DSN, using the 32-bit **ODBC Data Source Administrator**, %Windir%\SysWOW64\odbcad32.exe. |

**Note** Neevia DocCreator is licensed through Neevia Technology (www.neevia.com).

### 3.3.8.5 Coric Reporting Portal

Report Book Manager WEB reporting module utilises a lightweight WEB application tightly integrated with STR and STR Push Pull.

| Coric Reporting Portal Server Prerequisites | | |
|---|---|---|
| **Hardware** | **Processor** | x86 or x64 Multi Core Intel® or AMD, in a technologically current CPU model |
| | **RAM** | Minimum 4 GB |
| | **Hard disk space** | High performance internal disks with sufficient space for operating system, application files and temporary files. |
| **Installation** | **Installation Privileges on Windows** | The Coric application required to be installed under a Windows user account with full administrative privileges. The same account is required to run Coric Windows services. |
| **Windows Server Roles and Role Services** | Roles:<br>• Application Server<br>• Web Server<br>Role Services:<br>• .NET Framework 3.5.1<br>• Web Server (IIS) Support<br>• Distributed Transaction<br>  o Incoming Remote Transactions<br>  o Outgoing Remote Transactions<br>• Web Server<br>  o Common HTTP Features<br>  o Application Development<br>  ▪ ASP.NET<br>  ▪ .NET Extensibility<br>  ▪ ASP<br>  o Security<br>  ▪ Basic Authentication<br>  ▪ Windows Authentication<br>  o Management Tools<br>  ▪ IIS Management Console<br>  ▪ IIS 6 Management Compatibility<br>  • IIS 6 Metabase Compatibility | |

| Coric Reporting Portal Server Prerequisites | |
|---|---|
| **Features** | Features:<br>• NET Framework 3.5.1 Features<br>o .NET Framework 3.5.1<br>Message Queuing<br>• Message Queuing Services<br>o Message Queuing Server |
| **Other components** | Microsoft Internet Explorer |
| **Environment** | Required Local DTC Security settings:<br>• Enable Network DTC Access<br>• Transaction Manager Communication<br>o Allow Inbound<br>o Allow Outbound<br>o No Authentication Required |

#### 3.3.8.6 Coric STR Push Pull Server

Report Book Manager STR Push Pull service is a prerequisite for the WEB reporting module. The STR Push Pull service is servicing the Reporting Portal web pages, in a controlled and secure manner.

| Coric STR Push Pull Server Prerequisites (Required for the Reporting Portal module) | | |
|---|---|---|
| **Hardware** | **Processor** | x86 or x64 multi Core Intel® or AMD, in a technologically current CPU model |
| | **RAM** | 4 GB minimum |
| | **Hard disk space** | High performance internal disks with sufficient space for operating system, application files and temporary files |
| **Installation** | **Installation Privileges on Windows** | The Coric application required to be installed under a Windows domain user account with full local administrative privileges. The same account is required to run Coric Windows services. |
| **Windows Server Roles and Role Services** | Roles:<br>• Application Server<br>Role Services:<br>• .NET Framework | |

| Coric STR Push Pull Server Prerequisites (Required for the Reporting Portal module) | |
|---|---|
| **Features** | • NET Framework 3.5.1 Features<br>o .NET Framework 3.5.1<br>• Message Queuing<br>o Message Queuing Services<br>▪ Message Queuing Server<br>▪ Message Queuing Triggers |
| **Other Component** | • Microsoft Data Sources ODBC Driver<br>• Microsoft Internet Explorer |

### 3.3.8.7 Coric Clients

Coric Control Panel is an administrative tool for monitoring Coric, where STR is used for report book design. Both tools are installed on the processing servers and can optionally be installed on workstations.

| Coric STR and CCP Client Prerequisites | | |
|---|---|---|
| **Hardware** | **Processor** | x86 or x64 Single Core Intel® or AMD, in a technologically current CPU model |
| | **RAM** | 4 GB minimum |
| | **Hard disk space** | High performance internal disks with sufficient space for operating system, application files and temporary files |
| **Installation** | **Installation Privileges on Windows** | The Coric application required to be installed under a Windows domain user account with full local administrative privileges. |
| **Windows Server Roles and Role Services** | Roles:<br>• Application Server<br>Role Services:<br>.NET Framework | |
| **Features** | • NET Framework 3.5.1 Features<br>o .NET Framework 3.5.1 | |
| **Other components** | Microsoft Data Sources ODBC Driver<br>Microsoft Internet Explorer | |

### 3.3.9 SCDDiff

The configuration data comparison tool **SCDDIFF** is available as separate products with different features. It can be installed on and run from a SimCorp Dimension client or server, also, if needed, from a network share, and needs access to one or more SimCorp databases (for analysis and comparison) - it also needs access to store its own data and comparison data in the Oracle RDBMS.

**SCDDIFF** makes use of the following third party components:

| Component | Component version | | | Comments |
|---|---|---|---|---|
| | For v. 5.2 | For v. 5.3 | For v. 5.4 | |
| Java Runtime Environment | SE 6 (1.6) 64-bit | SE 7 (1.7) 64-bit | SE 7 (1.7) 64-bit | Is included and automatically installed with the installation package of **SCDDIFF** and is used as a dedicated JRE installation |
| Oracle RDBMS | * | * | * | Needs access to the SimCorp Dimension database |

* Since **SCDDIFF** compares SimCorp Dimension configuration data as stored in the SimCorp Dimension database or databases, it is by definition compatible with the same Oracle versions as specified for SimCorp Dimension in 3.2.4 “Database Server”.

For more information on **SCDDIFF** please contact your SimCorp representative.

### 3.3.10 Time Zone Adjustment

Adjustment of times across time zones is an optional module. Through this feature it is possible to convert times automatically, based on location.

This has been utilised in system events, for instance:

- Messages sent via the Communication Server
- Files imported into SimCorp Dimension
- Reports
- Windows in SimCorp Dimension

The implications of the time zone translation feature are:

- Database time zone must be configured and kept as defined. Errors due to wrong configuration might not be correctable
- It is possible to set user time zone if this cannot be derived automatically from Windows
- Time zones must be named like they are in the tz database

Please refer to section 4.2.8 “Local Time in Global Environments” for more details on setting up the local time zone.

The **TIME ZONE ADJUSTMENT** module is making use of the following third party components:

| Component | Component version | | | Comments |
|---|---|---|---|---|
| | For v. 5.2 | For v. 5.3 | For v. 5.4 | |
| TZ4Net Library | 3.8.1.0 | 3.8.2.0 | 3.8.4.0 | Fully integrated in SimCorp Dimension |
| tz database | 2011n | 2012b | 2012i | Fully integrated in SimCorp Dimension |

The TZ4Net Library is based on the tz database, also known as the zoneinfo database or the Olson database, which is a collaborative compilation of information about the world's time zones, maintained by a group of volunteers. This product includes software developed by Zbigniew Babiej (zbabiej@yahoo.com, http://www.babiej.demon.nl/Tz4Net/main.htm).

### 3.3.11 XpressInstruments

**XPRESSINSTRUMENTS** is optional modules allowing users of SimCorp Dimension to model financial instruments.

Pricing is possible both natively and using FINCAD.

| Note | SimCorp internal tests have shown incompatibilities between FINCAD and the Citrix EdgeSight/Server Monitoring components. For that reason it is recommended not to install the latter on any client or server where FINCAD is to be used. |
|---|---|

The CPU must support the SSE2 instruction set. This is a requirement for all client hosts from where **XPRESSINSTRUMENTS** is used. For more information about SSE2 please refer to: http://www.intel.com/support/processors/sb/CS-030123.htm.

# 4 System Configuration

After having prepared the system environment according to the specifications in chapter 3 “System Environment” and installed or upgraded SimCorp Dimension according to the guidelines in chapter 5 “Installation and Upgrade”, the complete system should be configured according to your needs in order to get the full benefit of it.

Some configurations should be prepared before installation or upgrade and, therefore, it is recommended to study the topics of this chapter before any installation and upgrade activities.

The configuration is logically divided into three areas, of which each has a dedicated section:

- Section 4.1 “Technology Platform Configuration”
- Section 4.2 “Standard Configuration”
- Section 4.3 “Module Specific Configuration”

## 4.1 Technology Platform Configuration

This section describes how to utilise selected areas of the technology platform, by showing how to configure it for maximum benefit. It also gives some information on how SimCorp Dimension makes use of the platform components.

### 4.1.1 Mail System Configuration

The standard mail setup should be configured in all systems for automatic warnings in case of problems. It requires a few SimCorp Dimension settings as described in section 4.1.1.1 “Standard Mail Setup”.

These settings cannot be made until SimCorp Dimension has been installed and cannot be utilised when the system is shut down during upgrade. For those reasons an alternative mail solution based on Windows environment variables has been added for use through the installation and upgrade processes, which has been described in section 4.1.1.2 “Mail Setup for Installation and Upgrade”.

#### 4.1.1.1 Standard Mail Setup

SimCorp Dimension can send e-mails in various situations, for example when a SimCorp Dimension server or batch job process fails. Sending emails requires an SMTP server and a sender address.

These two settings are retrieved using the following logic:

- The value from **MAINTENANCE** > **SYSTEM MAINENTANCE** > **System Options** > **Miscellaneous options** named **SMTP server** is used as value of the **SMTP server**
- If the Windows environment variable MAPISENDSMTPUSER is set and have content, this will be used for the **SMTP user.**
- If it is not set, the fallback is to use the value from **MAINTENANCE** > **SYSTEM MAINENTANCE** > **System Options** > **Miscellaneous options>Miscellaneous - 3** named **SMTP user**.

The logic above allows flexibility with regards to whether the settings are controlled for the PC, the SimCorp Dimension session or in general for the whole SimCorp Dimension installation.

#### 4.1.1.2 Mail Setup for Installation and Upgrade

Currently SimCorp Dimension supports a MAPI or SMTP configuration for sending mails during installation and upgrade.

It is recommended to use SMTP based mail as MAPI has been deprecated for standard mail functionality and only for a limited time preserved for installation and upgrade.

##### 4.1.1.2.1 Using MAPI

MAPI (mapisend.exe) is the default way of sending mails during installation and upgrade. Preferably setup mapisend.exe to use SMTP as described below 4.1.1.2.2. Otherwise MAPI is expected to be configured so that the mapi32.dll function MAPISendMail works as expected. This should work out of the box if MS Outlook is installed, although there may be complications when running it as a scheduled job or service without a simultaneous interactive login (due to missing MAPI registry entries in these cases).

For other mail systems such as Lotus Notes and GroupWise, MAPI compliance is possible to achieve, although experience has shown that it may be rather difficult to do so. In the Lotus Notes case, it has actually been achieved by several SimCorp Dimension clients, but not yet for users of GroupWise.

If using MAPI, a fully configured MAPI subsystem must exist for SimCorp Dimension users required to send mails. The configuration of the mail system lies outside the scope of SimCorp Dimension.

##### 4.1.1.2.2 Using SMTP

As an alternative to MAPI, especially in the cases where MAPI causes problems, SMTP support during installation and upgrade is provided through blat.exe.

| **Note** | In certain cases, the blat.exe file in the BIN folder can disappear without any apparent reason; for example it can be removed by anti-virus programs. If this behaviour is observed, be sure to write-protect blat.exe, as this problem does not appear if blat.exe is read-only. |
|---|---|

The mapisend.exe program builds a command-line for blat.exe and executes it instead of calling the MAPISendMail mapi32.dll function. The required configuration for this is two environment variables on every SimCorp Dimension client (or server) with the need for SMTP mail access during installation or upgrade, so it is actually possible to use the default MAPI for some clients and SMTP for others:

| | |
|---|---|
| `MAPISENDSMTPSERVER` | With the name or IP address of the SMTP server (host) |
| `MAPISENDSMTPUSER` | With the name of the SMTP user (the sender of the mail) |

An SMTP server must be active (SMTP port 25) and configured to accept the needed senders and recipients. Testing of SMTP availability can be done via blat.exe directly, or by using mapisend.exe from the command-line. When SMTP is configured (the environment variables set), mapisend prints the actual blat command (on standard output) for information purposes before executing the command. See more about testing from the command line below.

#### 4.1.1.2.3 Testing the Configuration

The MAPI and/or SMTP compliance can be tested by an entirely stand-alone command-line mail-sender utility “mapisend.exe”, which is part of the SimCorp Dimension deliverables, situated in the Bin folder. In order to use this test utility, call SimCorp Dimension root directory\Bin\mapisend.exe on the command-line for a usage overview. For example on the client to be tested:

- Open a Command prompt
- Navigate to the installations Bin folder
- For SMTP configuration check that the two environment variables MAPISENDSMTPSERVER and MAPISENDSMTPUSER is set correctly by typing `set mapi` and enter
- Type: `mapisend -r myemail@company.com -s "mail testing" -m "this is a test"`
- Check if you get the mail
- If you did not get a mail, check the response from mapisend command and fix. (Type mapisend -? from the bin folder to see a list of options to use with mapisend).

### 4.1.2 Microsoft Windows

Microsoft Windows has a number of features which require configuration or consideration when used as a platform for SimCorp Dimension, as described in the sub-sections:

- Section 4.1.2.1 “Registry Keys”
- Section 4.1.2.2 “Memory Allocation Balancing”
- Section 4.1.2.3 “Windows Error Reporting – WER”

The .NET Framework has been described in a separate section 4.1.3 “.NET Framework”.

#### 4.1.2.1 Registry Keys

A client running SimCorp Dimension needs access to create and update the registration database on the local workstation. SimCorp Dimension registers a number of components/entries during start up – namely:

- User specific session information in `HKEY_CURRENT_USER`
- SimCorp Dimension installation specific information in `HKEY_CURRENT_USER`

Depending on the settings in cnf.ini, also

- `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE.TNS_ADMIN`.

may need to be updated. Please refer to section 5.1 “Installation and Upgrade Considerations” and 4.2.1.1 “Database Connectivity Parameters” for details on this.

#### 4.1.2.2 Memory Allocation Balancing

The quantity of memory available to a process is limited. In 32-bit Windows, the limitation was primarily in virtual memory (address space) per process, and less so in physical memory. In 64-bit Windows, virtual memory per process is virtually unlimited, so any balancing consideration concerns trade-offs between performance and physical memory consumption. In many cases, better performance can be achieved for the price of extra physical memory consumption. The default settings of SimCorp Dimension have been set so that this balance is achieved for most uses of the product, but in some cases it may make good sense to adjust these settings.

As the distribution of the memory consumption between the different memory consumers in a SimCorp Dimension session will vary according to the usage, it can be beneficial to set the balance of a particular SimCorp Dimension session differently from default. The following section will explain the considerations that have to be done before

changing the balance between the four SimCorp Dimension memory consumers described in section 7.16.2 “SimCorp Dimension Memory Consumers” by changing the configuration for the two of them.

#### 4.1.2.2.1 Workspace

The default setting of the workspace size is 200 MB. This should be interpreted as a basic quota, which can be increased without severe risks. The workspace size is a virtual address space reservation, and has no impact on physical resources up front. Virtual address space was in short supply in 32-bit processes, but is not in 64-bit processes. Physical resources are only claimed when the reserved space is being used. The only concern in 64-bit is physical memory (RAM), which is only claimed when the process actually needs it. So the default workspace size can be increased without any physical resource penalty until the memory is actually used.

Allocating more memory to the workspace can be beneficial when the session processes large quantities of data in a limited- and APL implemented area of the SimCorp Dimension functionality. The maximum workspace size (or quota) should be large enough to handle peak situations. Having a limit / quota at all should be considered as an 'alarm' against unexpected extremes in order to avoid physical memory starvation of other processes. Physical memory starvation can lead to extreme performance degradation due to disk being used as physical memory.

In the case where the processing terminates with “workspace full” the cure is either to increase the workspace size or to subdivide the work into smaller units for processing.

It is possible to change the default size of the workspace for all SimCorp Dimension interactive users (normal sessions), all server sessions and/or all batch job sessions. This is configured through **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **System Environment Configuration** at the tab **General**

The workspace size can be altered for a single SimCorp Dimension session by adding

```
-WSSIZE=sizeInKilobytes
```

to the target line of the shortcut used to start the SimCorp Dimension session. The following example starts a session with a workspace of 300MB:

```
\\servername\sharename\scprod\bin\scd.exe -WSSIZE=307200
```

#### 4.1.2.2.2 Database Interface Space

The memory consumed is largely dependent on the unit of work: the larger the resultset, the more memory is required.

Two variables will control memory consumption. In cases where there is plenty of physical memory, it may make sense to either increase the defaults, or increase the values for individual SimCorp Dimension sessions. The latter is recommended while measuring the performance impact of the settings. These two variables come in two sets, one set for the APL database interface and one set for the C# database interface.

The first variable is fetch size which controls how many rows are fetched per trip to the database. For example, when the resultset has 100,000 rows of data with a size of 500 bytes, and the fetch size is 1,000,000 bytes it will require (100,000* 5,000)/1,000,000=50 requests to the database server to retrieve the complete resultset.

As each request to the database server will contribute to the response time, it is optimal to have as few roundtrips as possible balanced with the memory management overhead of a very large fetch size. It may however be necessary to sacrifice some performance for

less memory consumption. The fetch size affects not only the memory consumed by the current database select, but also the memory occupied by the cached cursors as explained below.

The default value for the fetch size is 5 MB.

The second variable is the maximum number of cached cursors which controls how many database select statements (cursors) are cached for reuse. The reason that cursors are cached is that the preparation of the cursors is more expensive than reusing an already prepared cursor. This feature is particularly beneficial when the SimCorp Dimension user does most of the processing within a very limited area of SimCorp Dimension where it would be very likely that the same database select would be re-executed. The mechanism will cache cursors until it reaches the maximum number of cached cursors, thereafter the least recently used cursor will be replaced with a new cursor. Setting the variable to 0 (zero) will ensure that memory consumption will be only what is required for the active database selects, but will also mean that the performance gained from reusing cursors is lost. This variable is currently defaulted to thirty cursors, which has been found to be a reasonable compromise between memory consumption and performance.

There are two ways to change fetch size and max cursor reused for the APL database interface. The first is to set these variables in the cnf.ini file which will set them for all sessions in the installation:

```
; Max reusable cursors
Dbmaxcursors=50
;Max fetch size in bytes
Dbmaxfetchalloc=5000000
```

These variables can be overridden for a specific session by adding them to the command line using:

```
-!dbmaxcursors=50 -!dbmaxfetchalloc=5000000
```

Setting the variables for the C# interface is done in an xml file that can be pointed to from the command line parameter:

```
-!marshallercustomconfig="fullPathFileName"
```

The contents of this file overwriting the two variables are in the < DatabaseInfo> tag and would be:

```
<?xml version=“1.0” encoding=“utf-8” ?>
<IMS>
 <Program>
  <Name>SimCorp Dimension</Name>
  ...
  <DatabaseInfo>
   <FetchSize>1000000</FetchSize>
   <StatementCacheSize>10</StatementCacheSize>
  </DatabaseInfo>
  ...
 </Program>
</IMS>
```

Suggestions for additional reading:

- Section 7.16 “Memory Management” with an overall description of memory allocation in Windows.
- Section 6.3.5 “Strategy for handling Memory Shortage” with an operational approach to “out-of-memory” errors.

#### 4.1.2.3 Windows Error Reporting – WER

Microsoft Windows has replaced the 'old' crash handling mechanism **Dr.Watson** with **Windows Error Reporting** (**WER**). Windows Vista, 7, 2008 Server and 2008 Server R2 are using **WER** only, while Windows 2003 Server is able to use **Dr.Watson** as well as an older version of **WER**. Contrary to **Dr.Watson**, **WER** does not save crash dumps locally by default. The default setup for **WER** is to prompt the user if crash dump information should be sent to Microsoft or not. This is not convenient in environments running in unattended mode (servers), environments not having an internet connection, or when a crash dump potentially contains sensitive information. Some or all of these restrictions typically apply, so SimCorp has not attempted to participate in the default Microsoft WER scheme. However, crash dumps can be very useful for troubleshooting purposes.

To facilitate troubleshooting if SimCorp Dimension crashes, SimCorp has chosen to enable local crash dumps by default for local installation deployment. For central installation deployment, there is no installation procedure that can set the two required registry settings (as Windows administrator), but it is highly recommended to do that either manually, or with standard distribution methods like SMS packages. The script `werlocal.cmd` located in the SimCorp Dimension bin folder can be used for this purpose. Windows admin rights are required to succeed.

The script is also useful for documenting what exactly is set in the registry.

If a registry key named

`HKEY_LOCAL_MACHINES\Software\Microsoft\Windows\Windows Error Reporting` exists, create a sub-key `LocalDumps` that contains a `DumpType` entry with the value `2`. If the `Windows Error reporting` key does not exist (it may not on Windows 2003 Server), an error message is printed, and nothing happens in the registry.

The effect of this is, that a maximum of 10 full memory crash dumps will be saved (oldest dump is replaced when 10 is reached). The crash dump location is `%LOCALAPPDATA%\CrashDumps`.

More information on this, along with many more **WER** options can be found at http://msdn.microsoft.com/en-us/library/bb513638(VS.85).aspx.

### 4.1.3 .NET Framework

The .NET Framework (.NET) is a runtime environment that allows partially compiled code to be fully compiled as part of the application execution process.

.NET is being widely utilised by SimCorp Dimension and should be properly configured. Even though it comes as standard with newer versions of Microsoft Windows, it can still be installed separately (for instance as a different version than the one that came with the Windows version in use) and should still be treated as a system environment component that needs some attention from the system administrator.

Unlike traditional ready-compiled code, it is possible to restrict functionality further for security reasons and not just by the rights of the executing user. SimCorp Dimension needs the .NET security level called FullTrust. Without FullTrust, SimCorp Dimension users will not be able to start the application.

If SimCorp Dimension is run as a local installation, the .NET Framework needs to be installed and FullTrust to the network installation is still required. Local installation is described in section 5.2.2 “Local Installation”.

Below are some configuration considerations.

#### 4.1.3.1 Configuring .NET

When running applications built upon the .NET platform there are some important issues to understand.

First of all the SimCorp Dimension .NET components run from a network drive. This drive needs the same access rights as a process running locally on your machine would have, which is “FullTrust”. This is a .NET specific requirement.

Secondly, you must configure the relevant security zone to “FullTrust” before the SimCorp Dimension can run. The solution described in this chapter has been tested and verified by SimCorp.

Thirdly, you must repeat the .NET configuration stated below on each client or server that SimCorp Dimension is run.

So, the following steps can be used in order to configure .NET:

1. Install/Verify the Correct Version of .NET
2. Run ‘CheckDotNetSettings.exe’ to Check Settings
3. Determine the Location of the .NET Installation
4. Verify Security Settings for the Actual Zone
5. Change Security Settings to FullTrust
6. Run ‘CheckDotNetSettings.exe’ to Verify Change

Detailed information is stated in the following sections, and an alternative solution is described in section 4.1.3.1.7 “.NET FullTrust for the SimCorp Dimension Folder”.

##### 4.1.3.1.1 Install/Verify the Correct Version of .NET

Before configuring .NET you should ensure you have the correct version of the Microsoft .NET Framework. Section 3.2.1 “SimCorp Dimension Clients” shows which version of the .NET Framework is required for the given SimCorp Dimension version.

The software can be downloaded from Microsoft’ Download Centre. Please ensure you follow the accompanying instructions and read all the information (such as the Readme files and other notes) provided by Microsoft on the actual download page for the package version you are downloading.

Unless otherwise advised it should be possible for a new version of the .NET Framework to coexist with an older version. Also unless otherwise advised, an install on a clean host (with no previous versions of .NET Framework installed) will install the previous versions as well. Installing the 32-bit .NET 4.0 package, for instance, will, besides the v4.0 folder also create the v3.5, v3.0, v2.0.50727 and v1.1.4322 folders in the Microsoft.NET\Framework folder, and on 64-bit windows additionally a similar set of folders will be created in the Microsoft.NET\Framework64 folder.

If any compatibility problems are experienced with the .NET Framework it is recommended to install all versions on top of each other, starting with the lowest version needed by any application in use (or just version 1.0, for convenience) and ending with the latest available version. This will work because the different versions can co-exist.

installation.

| Note | Please note that .NET Framework 4.5 overwrites .NET 4.0 but leaves versions prior to 4.0 intact. At present 4.5 is not supported. |
|---|---|

#### 4.1.3.1.2 Run 'CheckDotNetSettings.exe' to Check Settings

SimCorp supplies a utility program to check the .NET security settings from the Explorer window or from the command line. The utility program is called 'CheckDotNetSettings.exe' and is located in the Bin folder of the SimCorp Dimension installation.

| Note | CheckDotNetSettings.exe needs to be run on the machine where you intend to run SimCorp Dimension. For clients this means that you need to test it on the workstation where the software will run from. For server installations, it must be tested on the server that will be running the software. The file server is not the correct place to test it. The code is always executed locally on the workstation or server running SimCorp Dimension, so that is where .NET needs to be configured. |
|---|---|

Navigate to the SimCorp Dimension root folder, and from the Bin folder run the CheckDotNetSettings.exe program to get information about the status.

If the settings are correctly set to "FullTrust" the program displays a message saying settings look OK. When this is displayed no further configuration is needed.

If settings are not correct a warning is displayed saying: "Failed to obtain .NET 'FullTrust' Security rights."

Please note that you may encounter other messages if you have a .NET debugger installed on your machine.

#### 4.1.3.1.3 Determine the Location of the .NET Installation

Microsoft .NET 32-bit is normally installed in the "%WINDIR%\Microsoft.NET\Framework" folder. In most installations %WINDIR% is equal to "C:\WINDOWS".

As SimCorp Dimension is a 64-bit application additionally the 64-bit .NET should be present, normally installed in the "%WINDIR%\Microsoft.NET\Framework64" folder.

Both the 32-bit and the 64-bit .NET Frameworks are needed by SimCorp Dimension and its third party components.

Depending on the version of .NET installed a number of subfolders exist. In each of the .NET Framework folders look for a folder called "v2.0.50727" and another folder with a name starting with "v4.0". If these folders are missing, then you must install the .NET Framework on the machine. Please refer to section 4.1.3.1.1 "Install/Verify the Correct Version of .NET".

The full set of folders for .NET, relevant for SimCorp Dimension, should comprise:

- C:\windows\Microsoft.NET\Framework\v2.0.50727
- C:\windows\Microsoft.NET\Framework\v4.0.###
- C:\windows\Microsoft.NET\Framework64\v2.0.50727
- C:\windows\Microsoft.NET\Framework64\v4.0.###

| Note | Please note that .NET Framework 4.5 overwrites .NET Framework 4.0. At present 4.5 is not supported. |
|---|---|

#### 4.1.3.1.4 Verify Security Settings for the Actual Zone

Microsoft supplies the program CasPol.exe (Code Access Security Policy) to display and change the settings of the .NET Framework security settings. (Please refer to Microsoft

documentation for all instructions and options. Type `caspol -?` in order to display most of the available settings).

The tool ships in several versions with Microsoft .NET, and they are located in the .NET Framework folders described in section 4.1.3.1.3 “Determine the Location of the .NET Installation”.

| **Note** | The following must be done for each of the mentioned .NET Framework folders, one by one. |
|---|---|

Open a Command Prompt (for instance, Start -> Run. Type `Cmd`) and change the location to the .NET Framework folder.

| **Example** | `cd C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727` |
|---|---|

To display the current settings of your machine, open a Command prompt, and navigate to the folder. Then type the following command:

```
C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727>caspol
-machine –listgroups
```

This produces output like the following:

```
Microsoft (R) .NET Framework CasPol 2.0.50727.42
Copyright (c) Microsoft Corporation. All rights reserved.

Security is ON
Execution checking is ON
Policy change prompt is ON

Level = Machine

Code Groups:

1.  All code: Nothing
  1.1.  Zone - MyComputer: FullTrust
    1.1.1.StrongName – 002400000480000094000 ... : FullTrust
    1.1.2.  StrongName - 00000000000000000400000000000000: FullTrust
  1.2.  Zone - Intranet: Internet
    1.2.1.  All code: Same site Web
    1.2.2.  All code: Same directory FileIO - 'Read, PathDiscovery'
  1.3.  Zone - Internet: Internet
    1.3.1.  All code: Same site Web
  1.4.  Zone - Untrusted: Nothing
  1.5.  Zone - Trusted: Internet
    1.5.1.  All code: Same site Web
Success
```

Above we found that the zone for the SimCorp Dimension installation was “Local intranet”. Looking at the CasPol.exe output, we can see that section 1.2 corresponds to “Zone – Intranet”, and that the current .NET security setting for this zone is incorrectly set to “Internet”. The next step is to change this setting from “Internet” to “FullTrust”.

#### 4.1.3.1.5 Change Security Settings to FullTrust

The Microsoft program CasPol.exe is also used to modify the settings. Please note that you need administrator's rights on the host to modify the settings. On Windows Server 2008 in addition the Command Prompt must be run as administrator (start the Command Prompt by right click on the icon and select "Run as administrator").

We want to change the settings for "1.2. Zone – Intranet" from "Internet" to "FullTrust". To do this, for each of the .NET Framework folders set the location to that folder and type the following at the command line:

```
caspol -machine -chggroup 1.2 -zone intranet FullTrust
```

You are prompted to verify a request like the following (depending on the .NET Framework folder):

*Microsoft (R) .NET Framework CasPol 2.0.50727.42*
*Copyright (c) Microsoft Corporation. All rights reserved.*

*The operation you are performing will alter security policy.*
*Are you sure you want to perform this operation? (yes/no)*

Press "y" and press Enter. The following should be the result from running the command:

*Changed code group membership condition to type "-zone" in the Machine level.*
*Changed code group permission set to "FullTrust" in the Machine level.*
*Success*

| **Note** | SimCorp has experienced that when making changes to .NET security settings for the first time on a server running Windows Server 2008, the changes would not apply until the server has been rebooted. Afterwards, changes to the security settings were applied immediately. |
|---|---|

The above example is for installations where you have determined that the SimCorp Dimension folder is in the Intranet Zone (see above). If you have found the folder to be in a different zone, for instance Internet, and you do not change the security zone of the installation through Internet Options, then you need to change 1.2 to the appropriate number for the actual zone. The output from CasPol.exe will show you the correct number to enter for each zone.

| **Note** | If you have defined a network drive for your SimCorp Dimension folder you need to set the .NET security permissions for both the network path and the network drive, for example both for `X:\prod` and `\\myserver\dimension\prod` (example paths). The same applies if your LAN has addresses mapped both with and without DNS suffix, for instance where `\\myserver` is equivalent to `\\myserver.myfirm.com`. In this case you should also set FullTrust for both versions of the path. |
|---|---|

#### 4.1.3.1.6 Run 'CheckDotNetSettings.exe' to Verify Change

Rerun the program 'CheckDotNetSettings.exe' to verify the change. Please refer to section 4.1.3.1.2 "Run 'CheckDotNetSettings.exe' to Check Settings" for expected output.

#### 4.1.3.1.7 .NET FullTrust for the SimCorp Dimension Folder

It is strongly recommended to set FullTrust on zone level, as described in section 4.1.3.1 "Configuring .NET". However it is possible to restrict FullTrust to 'just' the SimCorp Dimension folder on the intranet using the following from a Command Prompt:

```
%systemroot%\Microsoft.NET\Framework\v2.0.50727\CasPol.exe -machine -
addgroup 1.2 -url file://Server/share/* FullTrust

%systemroot%\Microsoft.NET\Framework\v4.0.###\CasPol.exe -machine -
addgroup 1.2 -url file://Server/share/* FullTrust
 %systemroot%\Microsoft.NET\Framework64\v2.0.50727\CasPol.exe -machine
-addgroup 1.2 -url file://Server/share/* FullTrust
 %systemroot%\Microsoft.NET\Framework64\v4.0.###\CasPol.exe -machine -
addgroup 1.2 -url file://Server/share/* FullTrust
```

Please note the * after the share name. The ### must be replaced with the actual sub-version/revision number of the .NET version installed – please check the folder name at the client or server computer.

This solution will require somewhat more maintenance.

**Note** This command needs to be run on each client or server that wishes to run the SimCorp Dimension application. If SimCorp Dimension is run from a mapped drive, the command must reflect this mapped drive and in this case FullTrust must be set to both the mapped drive and the UNC path.

**Note** The 'addgroup' switch may have to be altered from 1.2 to 1.3 if the fileserver is not on the same intranet zone or domain. Alternatively the location of the application has to be added to the Local Intranet zone using Internet Options.

**Note** This command alters .NET Security parameters which might be in conflict with your IT department and might require an express agreement with your IT department!

### 4.1.4 Oracle RDBMS

The Oracle RDBMS is a key component in the SimCorp Dimension platform and requires a number of settings and decisions to be made, as described in the sub-sections:

- Section 4.1.4.1 "Preferred Oracle Configuration"
- Section 4.1.4.2 "Align Objects"
- Section 4.1.4.3 "Supported Database Character Sets"
- Section 4.1.4.4 "Time Synchronisation When Using RAC"
- Section 4.1.4.5 "Database Optimizer Statistics"
- Section 4.1.4.6 "Quoted Naming"
- Section 4.1.4.7 "Database Users and Roles"
- Section 4.1.4.8 "Data Protection"
- Section 4.1.4.9 "External Data Access"
- Section 4.1.4.10 "Index Management"
- Section 4.1.4.11 "Database Application Info"
- Section 4.1.4.12 "Viewing User Constraints – Optimised View"
- Section 4.1.4.13 "Viewing added columns information

#### 4.1.4.1 Preferred Oracle Configuration

In order to ensure a high level of consistency in installations of SimCorp Dimension, SimCorp maintains a set of guidelines for configuring Oracle databases for optimal use of the application. These guidelines are called ***Preferred Oracle Configuration for SimCorp Dimension***.

***Preferred Oracle Configuration*** is designed to provide a solid base for SimCorp Dimension

installations. ***Preferred Oracle Configuration*** is constantly being evaluated and refined to make sure that the database is configured optimally for SimCorp Dimension. It aims to guarantee that the underlying database is set up in a proper manner and that any potential problems are not due to a poorly configured database.

| | |
|---|---|
| **Note** | SimCorp Dimension is tested on the Preferred Oracle configuration. Application performance may be seriously affected by configuration changes. As applications differ one application may suffer from a configuration change made in favour of another application. Likewise a configuration change made for one part of SimCorp Dimension may compromise another part of SimCorp Dimension. There may be various reasons for preferring other configurations, but be aware that by deliberately choosing a diverging configuration you also take the responsibility to test that SimCorp Dimension actually does perform on the chosen configuration. |

SimCorp recommends that the database is kept strictly dedicated to SimCorp Dimension generated objects only. Creating customised objects, such as materialised views, triggers etc. which can affect the operation of SimCorp Dimension is strongly discouraged and not supported. For example, if the storage for a customised materialised view built on SimCorp Dimension tables runs out of space, SimCorp Dimension transactions on the same tables will fail, as Oracle cannot maintain the materialised view due to the storage situation. Errors in SimCorp Dimension, like this example, are not supported under the standard maintenance contract and if reported will be dealt with on a time and material basis.

The document ***Preferred Oracle Configuration for SimCorp Dimension*** is available from the SimCorp Client Support and as an online manual in the installation. Please ensure that you from time to time consult the SimCorp Client Support for the latest updates to this manual.

#### 4.1.4.2 Align Objects

Align Objects is a tool developed by SimCorp. Align Objects uses PL/SQL package code for applying database object changes when changes to SimCorp Dimension are required. Database object changes is e.g. Altering a table, adding an index, adding a column constraint etc.

Align Objects can be executed using the Oracle Scheduler. Please refer to 4.2.1.7 “Align Objects Settings” for further information about what to setup in SimCorp Dimension. The document ***SimCorp Dimension Upgrade – Align Objects and use of the Oracle Scheduler*** that can be found at SimCorp Client Support site describes the subject more detailed.

Align Objects is used for a number of tasks in SimCorp Dimension as e.g.:

- Installation of SimCorp Dimension
- Upgrade of SimCorp Dimension
- **Apply Patches**
- **Update Installation File**
- **Verify Database Structure**
- **Table Storage Customisation**
- **Enable Partitioning**

If Align Objects uses Oracle Scheduler the processes runs in Oracle context. The consequence is that if the SimCorp Dimension process, that initiated the task is killed, the Oracle processes are still running. SimCorp Dimension is checking for running jobs on Oracle Scheduler to prevent a similar task to be started once more before the previous is ended.

Before Align Objects is executed, SimCorp Dimension checks to see if the database part of Align Object needs to be updated. For this the user needs full access to the <root>/tmp/ folder. See known issues 8.8.8 “Notification when executing Align Objects”

**Note** Features that uses Align Objects doesn’t allow users/servers etc. to be logged on until the update has finished.

**Note** If a feature that uses Align Objects fails you need to execute it again with success before users are allowed to use SimCorp Dimension again.

#### 4.1.4.3 Supported Database Character Sets

SimCorp Dimension supports the following Database character sets:

| Character set | Description |
|---|---|
| WE8MSWIN1252 | Western European character set |
| AL32UTF8 | Unicode* |

* Using a Unicode database requires a separate module in SimCorp Dimension. Please contact your SimCorp representative for more details if you would like to use a Unicode database. Please also refer to section 3.1.7 “Unicode Support” for more information on Unicode in SimCorp Dimension.

Note there is a difference between database character set, and the character set used by the Oracle client. This section refers to the database side and it defines the code set used for storing the characters in the database. That could for example be in Unicode. On the client side the character set used tells the Oracle communication software which code page is used on the client, so that the correct conversion to the database character set can be done. In SimCorp Dimension the client side character set is obtained automatically by the application.

##### 4.1.4.3.1 Unicode Support on a Unicode Database

If full Unicode support is wanted, the database must be migrated to a Unicode character set (AL32UTF8). In addition the SimCorp Dimension module **UNICODE SUPPORT** is needed.

Some single byte restrictions still apply - for example when using file export in ANSI format. SimCorp Dimension therefore needs to know which single byte code page to use. The single byte code page is set in the installation file *ins.ini* (the installation parameter *systemsbcodepage).* The default value for the parameter is Windows 1252 (“Western European”).

**Note** The *ins.ini* file can only be changed by SimCorp.

One restriction where Unicode characters are not allowed is when data is entered into ID fields (for instance Security ID, Portfolio etc.). The systemsbcodepage stated in the *ins.ini* file limits the allowed characters, meaning that it will not be possible to create records where the external key contains Unicode characters outside the single byte character set.

If no restrictions are necessary and Unicode characters should be allowed also in ID fields SimCorp Dimension needs to know. This is also set in the *ins.ini* file (unicodeidok = 1).

Please be aware that the database task **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Verify Database Structure** must be run after the ins-file update to ensure correct database constraints are in place.

**Note** If Unicode characters has been allowed also in ID fields it will not be possible to change it back.

A document ***Migrating database from single byte to multi byte character set*** is available from SimCorp on request if you are to convert your single byte database to Unicode.

#### 4.1.4.3.2 Characters without Uppercase Equivalents

Some lowercase characters do not have an uppercase equivalent in single-byte databases.

With the Win1252 character set these are lowercase mu (µ) and lowercase y dieresis or y umlaut (ÿ). This will cause problems when the database is converted to Unicode because these characters do have an uppercase representation in Unicode.

If these characters exist on a single-byte database in columns that has been defined to be all capitals (where this is enforced by a constraint), the conversion could lead to unexpected results. Therefore, such characters need to be identified before the database is converted to Unicode. If the Oracle Unicode conversion check tool, CSSCAN, lists records SimCorp can be contacted for help in identifying the specific records and assistance to correct the wrong characters.

### 4.1.4.4 Time Synchronisation When Using RAC

Timestamps are used in many parts of the SimCorp Dimension application, for example STP servers. If running the database on Oracle RAC (Real-time Application Cluster), the time on the database instances must be synchronised, otherwise unexpected errors will occur.

### 4.1.4.5 Database Optimizer Statistics

Database optimizer statistics are important in order to ensure a well performing database. Oracle automatically captures optimizer statistics through a predefined job. The built-in logic of this job facilitates that statistics are only gathered on objects with missing or stale statistics.

SimCorp do recommend some changes to the default behaviour of the job. For details please refer to the document ***Preferred Oracle Configuration for SimCorp Dimension***. After changes to the job parameters statistics should be deleted and re-established on the SimCorp Dimension schemas.

### 4.1.4.6 Quoted Naming

SimCorp Dimension does not support the use of quoted Oracle naming. Therefore naming of, for instance, tablespaces and schemas must follow the Oracle rules for un-quoted names. In addition please refer to section 6.5.4 “User Names and Passwords”.

### 4.1.4.7 Database Users and Roles

Please refer to section 7.11 “User Privileges”, for a detailed description of database roles and privileges needed to run SimCorp Dimension.

### 4.1.4.8 Data Protection

The SimCorp Dimension database tables are protected from outside data modification through the use of triggers.

This is to ensure that data is updated through the SimCorp Dimension application only.

A number of tables are used for interaction between SimCorp Dimension and other applications. Tables that are allowed to be updated from outside SimCorp Dimension are:

| Tablename | Usage |
|---|---|
| KEYRATIOS | Used to store key ratios for bonds separately from the key ratios calculated using the standard SimCorp Dimension set-up. The key ratios can either be imported from an external source or calculated using the key ratio calculation functionality that are included with the module as yield conventions for the calculation for specified segments of bonds. The key ratios can be used throughout the system through the price method „From Key Ratios Calculation". The interface „User defined key ratios/Basic' is part of the Alternative Key Ratios module |
| BATCHQUEUE | Used to "control" the batch server. Jobs can be added from the outside by raw SQL, or the PL/SQL package BATCHQUEUE_PKG |
| MSQUEUE | Import messages via filters from the outside. SQL can be used, or the PL/SQL package MSGQUE_PKG can be used |
| STPMSGEXTQUEUE | Used for the outside world to communicate with the STP environment. To import transactions or SWIFT messages |
| WMSELECTIONSTATE<br>WMBROWSEDEF<br>WMBROWSEISINS<br>WMBROWSERESULT<br>WMCAMAPPING<br>WMCLASS2TYPE<br>WMCLEANUP<br>WMFCMAPPINGS<br>WMFLDUPDRULES<br>WMFROMPOOL<br>WMGENFLDMAPPINGS<br>WMGENFLDS<br>WMGENSECDATA<br>WMIMPLOG<br>WMPOOL<br>WMREQUESTS<br>WMSECINF<br>WMSECINF2<br>WMSECVALIDATE<br>WMSELECTION<br>WMSELECTIONNOTIFY<br>WMSTLMDAYS<br>WMTOPOOL<br>WMYTMCONVS | Used for the WM interface in the German market. For further information see the user manuals "WM Setup Guide" and "WM Import Details" |

As part of patch apply SimCorp Dimension revoke access right given to users or roles not known by the application. To avoid access right to be revoked it is possible grant to a role and state the role name in the cnf.ini file. The cnf.ini parameter is called: `mqtabrole`. The role is granted INSERT, UPDATE, DELETE and SELECT to the above mentioned tables and EXECUTE to the two packages: BATCHQUEUE_PKG and MSGQUEUE_PKG. Grant the role to users who should be able to update the mentioned tables from outside SimCorp Dimension.

| | |
|---|---|
| **Note** | In order to use this feature: |
| 1) | Create the role and name it e.g. SCDUTILROLE and GRANT it to the relevant (non SimCorp Dimension) user(s). |
| 2) | Insert an entry in cnf.ini : `mqtabrole=SCDUTILROLE` |
| 3) | Run Verify Database Structure with “ALTER TABLE where needed” checked on all tables mentioned above (use “Select tables”). |

#### 4.1.4.9 External Data Access

The External Data Access (EDA) feature is based on Oracle “Fine Grained Access Control” available in Oracle Enterprise Edition.

In order to exploit this feature you allow external access for SimCorp Dimension users. This means that the user must have an Oracle user account to use when logging on from third party tools. As each SimCorp Dimension user already corresponds to an Oracle user it will be natural to map the user to its own Oracle account. The user will then use the same username/password both when logging on SimCorp Dimension and from third party tools.

It is however also possible to map the SimCorp Dimension user to another Oracle user if that is more convenient.

| | |
|---|---|
| **Note** | It is not possible to update SimCorp Dimension data from outside the application. The EDA feature provides read access only to the external users in accordance with the authorisation granted through SimCorp Dimension for a limited number of tables . |

Administration of External Data Access (EDA) involves access with the following account types:

- SimCorp Dimension SUPERVISOR
- SimCorp Dimension System Administrator
- Oracle database administrator with DBA privileges in Oracle

The SUPERVISOR is the only SimCorp Dimension user who may enable/disable EDA. When enabling, the SUPERVISOR in cooperation with the Oracle database administrator must decide on:

- Role name
- Default tablespace for external users

Enabling and disabling of the EDA feature is done from **MAINTENANCE** > **SYSTEM ACCESS** > **Security Options** at the tab **External Data Access**

The External users default tablespace should be stated. This cannot be the same as SimCorp Dimensions users’ tablespaces.

The role name may be any legal Oracle role name except from roles used by SimCorp Dimension. The name can only be changed if EDA is disabled.

| | |
|---|---|
| **Note** | Although not recommended, if running more than one SimCorp Dimension installation in the same database please ensure that the role name is unique to each installation, for example by including the SimCorp Dimension installation name in the role name. |

External users may be created in two ways:

- From within SimCorp Dimension by a SimCorp Dimension System Administrator
- Directly in the database by an Oracle database administrator

If created directly in the database, the new user should still be registered and linked to a user inside SimCorp Dimension.

Creation of external users and linking to SimCorp Dimension users is done from within SimCorp Dimension in **MAINTENANCE** > **SYSTEM ACCESS** > **External Users** > **Mapping**

If the external user has already been created in the database, the system will prompt for you to continue.

When installed and enabled, EDA will ensure the database authorisation on users that are mapped when they access the database from third party tools.

Data access permission is maintained within SimCorp Dimension. This means that the SimCorp Dimension System Administrator controls which data may be seen by which users.

The data possible to view using External Data Access is data where authorisation is controlled by the Authorisation Segments. At present it is the following tables:

- Securities (SECURITIES)
- Security Types (SECTYPES)
- Transactions (TRANSMAIN)
- Holding Keys (HOLKEYS)
- Portfolio Groups (PORTGROUPS)
- Portfolios (PORTFOLIOS)
- Holdings, Balances/Stock (HOLDINGS)
- Portfolio Group Types (PORTGROUPTYPES)
- Security Groups (SECGROUPS)
- Model Portfolios (MPDEFS)
- FO Holding Keys (FOHOLKEYS)
- FO Holdings (FOHOLDINGS)

The system maintains a log containing incidents and errors relating to EDA. The log is deleted every time EDA is enabled. The log resides in a table EDALOG, and may be inspected via SimCorp Dimension from **MAINTENANCE** > **SYSTEM ACCESS** > **External Users** > **Log**.

#### 4.1.4.10 Index Management

It is possible to delete certain of the SimCorp Dimension standard configured indexes and also to create new customised indexes maintained by the application.

The deletion and creation of indexes must take place in 2 steps:

1. Registration in the application using **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Index Management**
2. Run **Execute ALTER TABLE where needed** from **Verify Database Structure**

Step 1 may be done any time, but step 2 should be done in a "maintenance window" and there should not be any other users logged on to SimCorp Dimension while this function is running.

If you do not perform step 2, it will automatically be executed next time an Align Objects task is performed on that table. Please refer to: 4.1.4.2 "Align Objects" for further information.

At any time you will be able to check if there are pending changes in the **Index Management** drop-down menu **Functions** / **Managed Indexes**.

| | |
|---|---|
| **Note** | Extreme care should be taken when changing the index structure of SimCorp Dimension. In case of performance decrease SimCorp may ask you to roll back some of your index changes in order to rule out that the performance decrease is a result of deleting/creating indexes.<br><br>Any changes in this area should be carefully tested in a test installation which preferably should be a copy of the production installation. |

When deleting certain indexes you risk being unable to delete rows in the table governed by that index. For instance, if you delete the CHGUSR index (pointing to a column with referential constraint to the USERS table) in any table, you will receive an error message if you try to delete rows in the USERS table (deleting a user in the system).

In addition please refer to section 4.2.1.10 "Index Monitoring".

#### 4.1.4.11 Database Application Info

Being able to identify the module and action for individual sessions in the database is very useful for DBAs and System Administrators, especially in a situation where database resource consumption is being analysed.

By default, SimCorp Dimension is instrumented by the use of database application information. The option is controlled by **Enable the use of application info** on the **Miscellaneous – 3** tab in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **Miscellaneous Options**. It is highly recommended to leave this feature enabled.

With this enabled, SimCorp Dimension provides session specific information to Oracle regarding the individual session's actions, that is, what functionality (module and action) is performed by the session. This information will be available through the Oracle GV$SESSION view in the MODULE and ACTION columns. SimCorp Dimension also contains a user interface for viewing the information from GV$SESSION: **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Database Application Info** that is used to display the state of all current sessions on the database. For every session it is possible to see the source of the session, which OS user has logged on and from which computer. For each session it is possible to look up detailed information for the activities for the session as e.g. current SQL, locks and long operations. It is also possible to see locks and who is blocking whom– if actual at the time.

The Database Application Info is also used in the reporting of Capacity Management data, where the database activity is reported grouped per module

If the **Enable the use of application info** check box has not been selected, it will not be possible to identify the functionality the sessions are performing, only the information regarding the program they run, for instance SimCorp Dimension.

#### 4.1.4.12 Viewing User Constraints – Optimised View

When changes to database objects are performed in Align Objects, a considerable part of the time used is on querying the Oracle view USER_CONSTRAINTS. Please see 4.1.4.2 “Align Objects “ to see which parts of SimCorp Dimension uses Align Objects.

SimCorp has in connection with this use identified a serious performance penalty when accessing USER_CONSTRAINTS as it is defined. To eliminate this performance penalty SimCorp has defined a rewrite of the USER_CONSTRAINTS view, SCD_USER_CONSTRAINTS.

It is recommended that the Oracle DBA creates the SCD_USER_CONSTRAINTS view in the SYS schema, create a public synonym called SCD_USER_CONSTRAINTS on the view and grants select to public. This way SimCorp Dimension will be able to utilise the performance optimised SCD_USER_CONSTRAINTS view instead of USER_CONSTRAINTS. Omitting this database implementation will place a severe overhead on the time required when Align Objects tasks are performed (4.1.4.2 “Align Objects”).

Please find the SQL script for creating SCD_USER_CONSTRAINTS on the upgrade media.

#### 4.1.4.13 Viewing added columns information

When having partitioned tables and performing database object changes as described in 4.1.4.2 “Align Objects” the view SCD_USER_TAB_COLS_ADDED is needed.

The view will only expose a subset of the information that is already available in the Oracle view: USER_TAB_COLS, but the view SCD_USER_TAB_COLS_ADDED is needed as it shows which fields that are added after the table is created, and that information is not available in USER_TAB_COLS.

The Oracle DBA should create the SCD_USER_TAB_COLS_ADDED view in the SYS schema, create a public synonym called SCD_USER_TAB_COLS_ADDED on the view and grant select to public.

Please find the SQL script for creating SCD_USER_TAB_COLS_ADDED at the upgrade media.

| Note | Please note that **Check before upgrade** will fail if the view is missing. |
|---|---|

## 4.2 Standard Configuration

To use SimCorp Dimension a number of configuration parameters should be considered and possibly changed to match the needs of the specific installation. Most of the configuration settings will be stored in the configuration file Cnf.ini but should be viewed and altered from within SimCorp Dimension whenever possible. The reason for using the application when changing the values is that the application checks for all know restrictions for each parameter, the right character set is used and it prevents unintended characters to be saved that might disrupt application start-up.

Issues described in this section are grouped in the following sub-sections:

- Section 4.2.1 “Configuration File”

- Section 4.2.2 ”Message and User Control System (MUCS)”
- Section 4.2.3 “Communication Server”
- Section 4.2.4 “Service Host Server”
- Section 4.2.6 “Data Extractor”
- Section 4.2.8 “Local Time in Global Environments”

### 4.2.1 Configuration File

SimCorp Dimension contains a variety of configurable parameters. This section explains the technical aspects of the System Environment Configuration parameters. Please refer to section 7.4 “Configuration File Parameter Overview” for a full list of parameters described in this manual.

**Note** Information in the configuration file should be changed through the application e.g. **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **System Environment Configuration**. The Windows users performing the changes must have permission to update the *…\data\Cnf.ini* file. An exception is after copying an installation, then all database parameters should be carefully examined direct in the file before start-up to prevent mix of installations. Database Parameter values stated in the cnf.ini file is visible from inside SimCorp Dimension through **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Database Parameters**

**Note** Please be careful when updating the configuration parameters, as wrong values could lead to a malfunctioning system. A number of parameters should only be changes in agreement with SimCorp. The below overview is for reference only.

**Note** It is necessary to make a new workspace, using the task **Update Workspace**, after changing the database connection parameters or any other parameters in cnf.ini. The service hosts are using a configuration cache, which is synchronized when executing **Update Workspace**. Failure to do so will cause service hosts to connect to the old environment from before the cnf.ini update. **Update Workspace** is executed as part of **Patch-Apply**

When a SimCorp Dimension session is started, the system reads the configuration file (Cnf.ini) located in the Data folder. This file contains information about database connectivity, alternative placement of write access folders and other configuration parameters.

#### 4.2.1.1 Database Connectivity Parameters

Database connectivity is determined through the parameters in the [config] section of the Cnf.ini file. An example of database connectivity related parameters in the Cnf.ini file is shown below.

```
; dbname : data base source name
dbname=SCPROD
; datowner : data tables owner
datowner=SCDAT
; datts : data tables owner default tablespace
datts=SCDAT
; sysowner : system tables owner
sysowner=SCSYS
; systs : system tables owner default tablespace
systs=SCSYS
; trdowner: Order Manager data owner
trdowner=SCTRDOWNER
; trdts: Order Manager data tablespace
trdts=SCTRDTS
; trdindexts: Order Manager index tablespace
trdindexts=SCTRDINDEXTS
```

```
; trdarcts: Order Manager archive tablespace
trdarcts=SCTRDARCTS
; selrole : role for select access for use by
;           other users
selrole=SCSELROLE
; dexrole : role for select access to DEX schema tables
dexrole=SCDEXROLE
; reportrole : role for external report users
reportrole=SCREPORTROLE
; userrole : role for users
userrole=SCROLE
; userprofile : profile for users:
userprofile=SCUSERPROFILE
; systemprofile : profile for system users:
systemprofile=SCSYSTEMPROFILE
; userts : default tablespace for users
userts=SCUSERS
; indexts : tablespace for indexes
indexts=SCINDX
; auditts : tablespace for audit trail
auditts=SCAUDIT
; audixts : tablespace for audit trail indexes
audixts=SCAUDIX
;aofullcopytablespace : staging tablespace for Align Object
aofullcopytablespace=STAGE
;aofullcopyquota : Maximum quota in MB during full copy of tables
Aofullcopyquota= 30000
; dbaudit : enable audit trail
dbaudit=1
; dbstat : enable statistics
dbstat=1
; dbconstvalidate : validate constraints upon creation
dbconstvalidate=0
```

These entries should be read as follows:

- SCPROD is the service name used to connect to Oracle
- SCDAT is the data tables owner and schema for SimCorp Dimension
- SCDAT is the default tablespace for the data tables owner
- SCSYS is the system tables owner and schema for SimCorp Dimension
- SCSYS is the default tablespace for the system tables owner
- SCTRDOWNER is the ORDER MANAGER data owner is always present when ORDER MANAGER is installed
- SCTRDTS is the ORDER MANAGER tablespace used for data
- SCTRDINDEXTS is the ORDER MANAGER index tablespace that is always present for index tables
- SCTRDARCTS is the ORDER MANAGER archive tablespace that is always present for archive tables
- SCSELROLE is the database role created with select rights on all SimCorp Dimension data tables and views
- SCDEXROLE is a role created to ensure appropriate privileges for data extraction and Communication Server functionality. This role is not explicitly assigned to particular users. Instead it is granted to the user role, this ensures that users logged into SimCorp Dimension have the correct access to this set of objects.
- SCREPORTROLE is the role created for report users
- SCROLE is the password protected role granted to SimCorp Dimension users created in SimCorp Dimension and activated when logged on through the actual SimCorp Dimension installation
- SCUSERPROFILE is the profile given to SimCorp Dimension users created in SimCorp Dimension
- SCSYSTEMPROFILE is the profile assigned to the SimCorp Dimension created users, used for special system purposes, such as e.g. SERVER and BATCH. The profile has PASSWORD_LIFE_TIME=UNLIMITED and SESSIONS_PER_USER=UNLIMITED
- SCUSERS is the default tablespace for SimCorp Dimension users created in SimCorp Dimension

- SCINDX is the tablespace used to hold the applications indices. This parameter is blank if the indices are placed in the default tablespace (SCDAT)
- SCAUDIT is the tablespace used by SimCorp Dimension for historic records (audit trail tables). This parameter is blank if the audit tables are placed in the data owner's default tablespace (SCDAT) or if SimCorp Dimension is customised not to generate audit trail records
- SCAUDIX is the tablespace used if indices on the audit trail tables should be separated from data table indices
- STAGE is optional and used as the staging tablespace name used by SimCorp Dimension for temporary space when full copy is performed as part of Align Objects. There is a performance penalty using staging tablespace, so only use this when unused space in tablespace is an issue. Please note partitioned tables will always use the same tablespace from where the table originates..
- `Aofullcopyquota=` Is the maximum amount of space that at any given point in time can be allocated by the temporary tables when a full copy of a table is performed as part of Align Objects. Default is 0 and should never be set less than the largest table. Used when `aoparallel=1`.
- `Dbaudit=1` means audit trail is enabled
- `Dbstat=1` means statistics are enabled
- `Dbconstvalidate=0` means constraints are not validated upon creation

Instead of specifying `dbname=` in the Cnf.ini file, which additionally requires a `TNS_ADMIN` string value to be present in the Windows registry, a few more parameters can be specified in the Cnf.ini file. The following parameters should then be present:

```
dbconnecthost=...
dbconnectport=...
dbconnectprotocol=...
```

and either:

```
dbconnectservice=...
```

or

```
dbconnectsid=...
```

If both are defined, then only `dbconnectservice=` is used.

If `dbname=` is defined the `dbconnect` parameters will be ignored.

Example where `dbname=` is not defined:

```
[config]
state=PROD
icon=green

; dbname : database source name
dbname=
; dbconnecthost, dbconnectport, dbconnectprotocol and dbconnectservice
or dbconnectsid : alternative data source specification
dbconnecthost=DK01SNT503
dbconnectport=1723
dbconnectprotocol=TCP
dbconnectservice=
dbconnectsid=T5032132
```

Please refer to sections 3.2.4 "Database Server" and 6.3.3 "Metadata" for more details on database users, tablespaces, privileges and roles, and to section 5.1 "Installation and Upgrade Considerations" for more information on the registry key TNS_ADMIN.

#### 4.2.1.1.1 Order Manager SQL Server database connectivity parameters

If using Order Manager additional parameters will be available in the [config] section of the Cnf.ini file. These parameters are used to gain access to the FIX engine database from the Order Manager management service. An example of database connectivity related parameters in the Cnf.ini file is shown below.

```
omsqlserverhost=DK01SVT937
omfixdatabasename=54FNSPUBLIC
omauthentication=1
omsqlserverusername=fnspublic
omsqlserverpassword=Simcorp1
```

These entries should be read as follows:

- OMSQLSERVERHOST is the name of the physical server where Microsoft SQL Server is installed/running. This should include the instance name if one is required/specified.
- OMFIXDATABASENAME is the name of the FIX engine database on the SQL Server instance.
- OMAUTHENTICATION indicates whether Windows Authentication (0) or a SQL Server user (1) is used to access the FIX engine SQL Server database
- OMSQLSERVERUSERNAME is the username used to authenticate the connection is SQL Server user authentication is specified in the omauthentication parameter.
- OMSQLSERVERPASSWORD is the password used during authentication of the SQL Server username.

### 4.2.1.2 Redirection of Common Write Access Folders and HelpSystem

SimCorp Dimension folders, where users need write access, can be redirected to another location. The registration is stated on the Directories tab in **System Environment Configuration.**

The registered alternative paths are updated in the [lib] section of the configuration file. An example of this is shown below:

```
[lib]
tmp=\\SCFILE\SCDimension\Prod\Tmp
log=\\SCFILE\SCDimension\Prod\Log
rep=\\SCFILE\SCDimension\Prod\Rep
comsrv=\\SCFILE\SCDimension\Prod\ComSrv
protected=\\SCFILE\SCDimension\Prod\Protected
transport=\\SCFILE\SCDimension\Prod\Transport
stdiml=\\SCFILE\SCDimension\Prod\IML
rconnect=\\SCFILE\SCDimension\Prod\RConnect
dump=\\SCFILE\SCDimension\Prod\Tmp\Dump
HelpSystem=\\SCFILE\SCDimension\54\HelpSystem
```

| Note | It is recommended that you use UNC path notation. If mapped drives are used instead of UNC paths, the drive letters must be mapped to the same destinations on all SimCorp Dimension client and server PC's and the paths and folders must exist. Mapping a drive letter to the SimCorp Dimension installation's root folder (Prod, in the above example) is not supported. |
|---|---|

Changing the location of the Write access folders must be done from the task **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options > System Environment Configuration.**

From **System Environment Configuration** it is also possible to state alternative directories, which can be used as part of defining Reference Files (see section 6.1.10.1 "Log Reference Files from the Application"). Defining a path relative to the Production and Test environments can be an advantage when copying from Production to Test, because reference files do not need to be changed in the Test environment after the copy. The

reference files use the paths specified in the configuration file, which is not changed as part of the copy procedure.

In addition to the [lib] section entries shown above, the Production installation could, for example, have the following entries:

```
batchlog=\\SCFILE\SCDimension\Prod\Log\batchlogs
serverlog=C:\SCDimension\Prod\Log\Servers
limitlog=\\SCFILE\SCDimension\Prod\Log\limitlogs
```

While the corresponding entries in the Test installation would look like this:

```
batchlog=\\SCFILE\SCDimension\Test\Log\batchlogs
serverlog=C:\SCDimension\Test\Log\Servers
limitlog=\\SCFILE\SCDimension\Test\Log\limitlogs
```

| | |
|---|---|
| **Note** | In the example a log file using the `serverlog` directory will be written to the local disk on the server where the SimCorp Dimension session, defined to use this log file, is started. The folders must exist as defined and the Windows user used to start the SimCorp Dimension session must have the appropriate permission to write to this folder. |

Beside the folders where users needs write access it is possible to redirect the Help System location. The path is stated in the **Help system location** field, in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options > System Environment Configuration.**

It is possible to share the Help system between all installations with the same SimCorp Dimension version if preferable. Then all installations need to have the same path registered.

Please refer to SimCorp Dimension ***New Help System*** User Manual for details. The manual is also present at the Client Support site.

#### 4.2.1.3 Colour Coding Shortcut and Icon for Installation Variants

To make it easier to distinguish between different installations of SimCorp Dimension it is possible to add a coloured dot to the SimCorp Dimension shortcut icon. The change of shortcut icon is done from Properties of the shortcut using Change Icon. The file to use is scd.exe found in the bin folder of the netroot installation.

The change to the shortcut icon only adds the coloured dot to the shortcut. To add a colour to the SimCorp Dimension application windows it is necessary to register this on the **General** tab in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options > System Environment Configuration**:

This defines the colour of the icon shown in the upper left corner of all SimCorp Dimension windows and the colour on the SimCorp Dimension icon shown in the Windows Task Notification area. If “Use in windows” is selected, the menu bar area will be filled with same colour.

The colour corresponds to the Icon entry in the [config] section and the mark in “use in windows” corresponds to the [config] entry “iconcolinforms” in the configuration file. The codes for the possible colours are shown in the table below:

| Icon colour | Code |
|---|---|
| Black | black |
| Blue | blue |
| Dark blue | darkblue |
| Dark green | darkgreen |
| Dark grey | darkgrey |
| Dark red | darkred |
| Green | green |
| Light blue | lightblue |
| Light grey | lightgrey |
| Red | red |
| Violet | violet |
| White | white |
| Yellow | yellow |

**Note** Colour coding is not implemented for the **ORDER MANAGER** client.

#### 4.2.1.4 Naming the SimCorp Dimension Installation

The State entry in the [config] section in the configuration file gives the name of the SimCorp Dimension installation, as shown in the SimCorp Dimension main window in the Windows caption bar, for instance PROD, TEST or NEW.

If the name (state) is changed or the installation copied from Production to, for example, the Test environment, when SimCorp Dimension is next opened shows the error “Fatal Error Workspace belongs to another installation”. In this case …\Prog\main.dws should be renamed and SimCorp Dimension started again so that the workspace file can be reinitiated. Please be aware that the user starting the test environment this first time must be able to change the contents of the Prog folder.

**Note** Please inform customer service if the installation name (state) is changed as patches and new installation files must be generated based on the new installation name. Omitting this step may prevent patching, ins-file updates and upgrading.

Please be aware the name (state) must only contain alphanumeric characters A to Z, 0 to 9 and the underscore character (“_”). The name must start with an alphanumeric character. The name must not exceed 20 characters and must not contain spaces or special characters (for instance, #, &, *). The following words are reserved and may not be used:

- SIMCORP
- SCD
- TMS
- VER## (for instance, VER51)

| Note | If the name of the installation is reflected in the installation file *(…\Data\Ins.ini,* entry *installation*=) it will not be possible to change the name of the installation. |
|---|---|

#### 4.2.1.5 The URL Protocol Name

When opening the SimCorp Dimension Portal, the URL protocol name is shown in the address bar of the Browser window. The URL protocol name is the starting point for the SimCorp Dimension module hierarchy and can be used in, for example, shortcuts or Favourites to specific tasks.

The URL protocol name is registered in the configuration file under the **[portal]** section. For example:

```
[portal]
urlprotocol=scprod
```

Changing the URL protocol name must be done from **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options > System Environment Configuration**.

Please be aware that the following rules must be applied when changing the URL protocol name:

- The URL protocol name can only consist of lower case alphabetic letters from a – z and/or numbers from 0 – 9
- No spaces or special characters are allowed in the URL protocol name
- The URL protocol name must be unique to the installation, meaning that they must, for instance, be different for Production and Test installations

By default, the URL protocol is named 'sc' plus the installation name in lower case, for instance 'scprod'. If there is a character in the installation name which is not allowed in the URL protocol name, it will be removed in the default generated name.

| Note | If the URL protocol name is changed (for example as part of an upgrade) then existing user Favourites and shortcuts will not work any longer and will need to be redefined. |
|---|---|

#### 4.2.1.6 Parallel Options

If the database supports parallel processing it is possible to run certain routines using database parallel query and execution. To enable SimCorp Dimension to utilise database parallel processes the [CONFIG] section in Cnf.ini file must be edited.

Setting `dbalterparallel=1` allows SimCorp Dimension to use database parallel execution when database object changes as described in: 4.1.4.2 "Align Objects"

Setting `dbindexparallel=1` allows SimCorp Dimension to use database parallel execution when indexes are to be built or rebuilt as part of Align objects execution.

Setting `dbstatparallel=1` allows SimCorp Dimension to take advantage of parallel query during database statistic gathering.

A very time consuming phase for a number of portfolio and performance calculations can be when loading positions. Setting `dbparallelselect` will allow for parallel query of the select statements performed when loading positions (please refer to section 4.2.1.6.1 "Loading positions Parameters"). And `dbindexjoinselect=1` will allow the database to use index joining for all the tables in those selects.

The *cnf.ini* file settings should be added to the **[config]** section, for instance:

```
…
[config]
…
;dbparallelselect : allow selects in loading positions
;    to execute in parallel
dbparallelselect=0000011
; dbindexjoinselect : allow index joining on tables in
;    loading positions selects
dbindexjoinselect=1
; dbparalleldegree : parallel degree used when executing
;    select in parallel
dbparalleldegree=4
```

| Note | It is vital that the database server is configured appropriately to allow for parallel processing. When running functions in parallel Oracle spawns parallel processes as defined by certain Oracle configuration parameters. Lack of CPU, memory or other resources can seriously harm performance. Please refer to Oracle documentation on parallel processing before enabling this feature in SimCorp Dimension. |
|---|---|

It is strongly recommended to test these options thoroughly before implementing in production systems. But please be aware of the above note, which also applies to the test system. If the database server, for the test database, has fewer resources than the production database, the test database server must be configured with respect to its resources.

#### 4.2.1.6.1 Loading positions Parameters

If performance is a problem and loading of positions has been identified as the bottle neck, it might be relevant to test one or more of the following combination of settings for parallel query execution. All of the parameters must be specified in the `[config]` section of the Cnf.ini file.

##### dbparallelselect

This is a vector of bits (0/1). Each of the bits enable/disable parallel select in different areas.

| Bit | Meaning |
|---|---|
| `00000001` | Portfolio calculation |
| `00000010` | Performance calculation |
| `00000100` | Cash Management |
| `00001000` | Portfolio Manager/Position analysis/Rebalancing/Copy Prices |
| `00010000` | Limit calculations |
| `00100000` | Create back office transactions |
| `01000000` | Risk Measurement |
| `10000000` | Collateral Manager |

| Example | `dbparallelselect=00000101` will enable parallel select for Cash Management and Portfolio Calculation, and not for the other areas. |
|---|---|

To be backward compatible a single bit will be interpreted as: 00000011.

**dbparalleldegree**
Used when executing parallel select to determine the number of processes to use, if not specified Oracle will use all processes available. For instance, setting `dbparalleldegree=4`, limits Oracle to utilise four processes, even if the database server has more resources available.

**dbpeekbind**
Specifies if bind peeking should be used. The value is a vector of bits (0/1), as with `dbparallelselect`, one for each area. Please refer to `dbparallelselect` above for example.

The `dbpeekbind` parameter will be ignored if bind peeking is enabled for the database. If the `dbpeekbind` bit is set, it will overwrite a setting of `dbpeekbindmain=0` (or `2` where bind peeking is disabled for the database). For more detail on `dbpeekbindmain`, please refer to section 4.2.1.11 “Bind Peeking”.

**dbnomergesubq**
Specify if NO_MERGE sub queries should be used. The value is a vector of bits (0/1), one for each area; the same as for `dbparallelselect`.

| Note | By default NO_MERGE is enabled for all areas, meaning if nothing else have been specified NO_MERGE will be used. |
|---|---|

Example:

```
[config]
dbparallelselect=0000011
dbparalleldegree=2
dbnomergesubq=0000100
```

The example will enable parallel select during loading positions for the portfolio and performance calculation, using two Oracle processes, and enable use of NO_MERGE hint in the Short/Long term cash management.

| Note | Not all combinations of these parameters have been tested for all areas. |
|---|---|

| Area | Recommendations and limitations |
|---|---|
| Portfolio calculation | Recommendation: using the parallel options have in several installations reduced the ‘Loading Positions’ significantly.<br>Limitations: only `dbparallelselect=` and `dbparalleldegree=` is supported. |
| Performance calculation | |
| Risk Measurement | |
| Cash Management | Recommendation: the `dbnomergesubq=` have been tested with success in a number of installations.<br>Limitations: all parameters can be used, but the parallel select should be used with care to avoid overloading the database |
| Portfolio Manager<br>Position analysis<br>Rebalancing<br>Copy Prices | |

| Area | Recommendations and limitations |
|---|---|
| Limit calculations | |
| Create back office transactions | |
| Collateral Manager | |

#### 4.2.1.7 Align Objects Settings

`Setting aoparallel=1` enables SimCorp Dimension to utilise the Oracle Scheduler when Align Objects are executed. Using the Oracle Scheduler allows for multiple database object changes concurrently. With `aoparallel=0` SimCorp Dimension does not utilise the Oracle Scheduler, and object changes are made in sequence.

It is possible to use parallel option during Align Objects, but only on large table sized greater than the threshold specified in `aoparallelthresholdsize`. The parallel degree that will be used depends on `aoparallel`.

When `aoparallel=1` it is possible to specify parallel degree by setting `aodefnocpuscheduled`. Default parallel degree is 50% of the number of cores in the database server, assuming 2 threads per CPU (PARALLEL_THREDS_PER_CPU). `dbdefnocpu` will be used when `aodefnocpuscheduled` is not specified an `aoparallel=1`.

When `aoparallel=0` it is possible to specify parallel degree by setting `dbdefnocpu`, default value is twice the number of cores in the database server.

The threshold size for when it is optimal to use parallel degree, without having a too big overhead managing parallel processing, can be set using `aoparallelthresholdsize`. Default value if not specified is 50 MB.

To prevent large amount of unused space in data tablespaces, caused by the structural table changes which cannot be performed on the existing tables, it is possible to setup a staging area specified by the settings `aofullcopytablespace` and `aofullcopyquota`.`aofullcopytablespace` specify the staging tablespace Align Objects will use when full copying tables. If not set Align Object will use the tablespace from where the table in question originates. If using staging tablespace during upgrade and not having specified `aofullcopytablespace` and `aofullcopyquota`, then the staging tablespace can be dropped after use but please note that until the SimCorp Dimension upgrade activity has finished it will contain the only copy of the data in question.

The staging tablespace which Align Object uses should be created as a locally managed tablespace using automatic segment space management :

Example:

```
CREATE TABLESPACE stage
DATAFILE
'/u/oradata/stage01.dbf' SIZE 10G AUTOEXTEND ON NEXT 500M MAXSIZE
unlimited,
'/u/oradata/stage02.dbf' SIZE 10G AUTOEXTEND ON NEXT 500M MAXSIZE
unlimited
ALTER USER install QUOTA UNLIMITED ON stage;
ALTER USER scdat QUOTA UNLIMITED ON stage;
```

Please note there will be a performance penalty when using the `aofullcopytablespace`, because a table's data needs to be copied twice as opposed to once. Also note that it is not possible for partitioned tables to use the `aofullcopytablespace`.

`aofullcopyquota` should here to be understood as the maximum amount of space that at any given point in time can be allocated by the temporary tables when a full copy of a table is performed as part of Align Objects, by limiting how many concurrent full copies that can occur at same time.

If both `aofullcopyquota` and `aofullcopytablespace` is specified the quota relates to the staging area.

If `aofullcopyquota` is specified but not `aofullcopytablespace` the quota relates to the tablespaces where the original tables resides.

`Aofullcopyquota` will be used when using Oracle Scheduler (`aoparallel=1`). The size (in MB) should be larger than the largest table with an addition to be able to contain the change in question. Example setting `aofullcopyquota=100` and having 4 tables that need to be full copied each on 50MB, then Align Objects will start doing full copy on 2 tables and set the 2 other to wait until there free space again.

If `aofullcopyquota` is not used together with `aofullcopytablespace`, then the performance penalty is limited, since the table is not moved twice. If `aofullcopyquota` is not specified then Align Objects assumes the tablespace has sufficient size.

The *cnf.ini* file settings should be added to the **[config]** section, for instance:

```
…
[config]
state=…
…
dbname=…
…; dbalterparallel : allow dbAlterTable to execute in
;    parallel
dbalterparallel=1
; dbindexparallel : allow indexes to be created in
;    parallel
dbindexparallel=1
; aodefnocpuscheduled : parallel degree when
;    using scheduler
aodefnocpuscheduled=4
; aoparallelthresholdsize : threshold size for when to
;    use parallel degree
aoparallelthresholdsize=100
; dbdefnocpu : no of cpu's - used when executing in parallel
dbdefnocpu=32
;aofullcopytablespace : Staging tablespace for Align Objects
aofullcopytablespace= stage
;aofullcopyquota : Maximum quota in MB during full copy of tables
Aofullcopyquota=500
…
```

It is strongly recommended to test these options thoroughly before implementing in production systems. If the database server, for the test database, has fewer resources than the production database, the test database server must be configured with respect to its resources.

#### 4.2.1.8 Netroot

A netroot entry in the **[lib]** section gives the UNC path to the location of the network installation. This entry is only used when there are clients using SimCorp Dimension **Local Installations**. If no clients are to run SimCorp Dimension **Local Installation**, it is recommended that this entry is commented out. Please do not use Netroot as abbreviation for other purposes. The presence of the netroot in the **[lib]** section will change the behaviour in some part of the application.

If you like to know more about “local installation”, refer to the ***Local Installation White Paper***, which is available through your local SimCorp representative. Please consult the SimCorp Customer Support or contact your SimCorp representative for more information.

#### 4.2.1.9 Shutdownbyuser and Shutdownfrompc

In the **[config]** section of the *cnf.ini* file it is possible to specify the following entries:

```
shutdownbyuser=<user>[,<user>,..]
shutdownfrompc=<pcname>[,<pcname>,..]
```

These options determine which Windows users are allowed to shutdown or from which PC's it is possible to shutdown SimCorp Dimension sessions from a Command line (please refer to section 7.1.1 "scd.exe" for more details).

If both shutdownfrompc and shutdownbyuser are set, information is 'AND'-ed together. Example: if the following entries are in the *cnf.ini* file, only the Windows user TPG can execute the `scd.exe -shutdown` command, and only if the command is run on a PC with the host name P389WS:

```
[config]
…
shutdownbyuser=TPG
shutdownfrompc=P389WS
…
```

Attempts to use `scd.exe –shutdown` by any other Windows users or from any other PC will not be executed and result in an error.

If only the shutdownbyuser is specified, then Windows user TPG can run the command from any PC. If only shutdownfrompc is specified, then any user (with appropriate Windows permissions to SimCorp Dimension) can run the command, but only from a PC with host name P389WS.

If there are no entries for these parameters (the default situation) in the *cnf.ini* file, then all users (with appropriate Windows permissions to SimCorp Dimension) can run the `scd.exe –shutdown` command and it can be run from any PC.

#### 4.2.1.10 Index Monitoring

In order to identify unused indexes, monitoring of indexes has been implemented. Monitoring is enabled by the Cnf.ini parameter `dbindexmon`:

```
[config]
…
dbindexmon=1
…
```

The default value of `dbindexmon` is 1, meaning 'on'.

It is possible to switch the monitoring off (setting `dbindexmon=0`), but this is not encouraged, as the information on usage of indexes will be required in future releases in order to remove indexes no longer needed. Monitoring of indexes has no influence on system performance in general. The monitoring is not enabled on temporary indexes.

| **Note** | Please be aware of the known issue stated in section 8.9.10 "Parent Row Delete Does Not Influence Index Monitoring". |
|---|---|

#### 4.2.1.11 Bind Peeking

The Oracle database supports peeking of bind values when the Optimizer creates execution plans for a given SQL statement containing bind variables. This feature is in the database controlled with the initialization parameter `_OPTIM_PEEK_USER_BINDS`, which in Oracle defaults to `TRUE`. For certain SQL statements, a value of `TRUE` for this parameter can yield very varied performance.

SimCorp's preferred setting for `_OPTIM_PEEK_USER_BINDS` is `FALSE`, as specified in the document ***Preferred Oracle Configuration for SimCorp Dimension***.

A value of `_OPTIM_PEEK_USER_BINDS` set to `TRUE`, can have negative performance impact on certain core areas of the system, whereas other areas may significantly benefit. In order to control the values of `_OPTIM_PEEK_USER_BINDS`, two SimCorp Dimension configuration parameters can be used to control bind peeking.

The parameters are named `dbpeekbindmain` and `dbpeekbinddex` and can be set to 0, 1 or 2:

| Value | Meaning |
|---|---|
| 0 | disable bind peeking |
| 1 | enable bind peeking |
| 2 | database setting (default) |

The parameters, if needed to change from default, must be specified in the **[config]** section of the Cnf.ini file. If the parameters are absent from the Cnf.ini file the default value apply, meaning `dbpeekbindmain=2` and `dbpeekbinddex=2`.

The parameter `dbpeekbinddex` controls the usage of bind peeking in the Data Extractor where the parameters `dbpeekbindmain` controls the rest of SimCorp Dimension except the report generator which uses the default database setting. Reports run through SimCorp Dimension are not affected by bind peeking as these are implemented using literals rather than bind variables.

As an example, the following depicts such a scenario:

It has been established that performance of the general SimCorp Dimension transactional functionality is seriously affected when `_OPTIM_PEEK_USER_BINDS=TRUE`, although massively improving performance for the general functionality, setting `_OPTIM_PEEK_USER_BINDS=FALSE` now causes SimCorp Dimension Data Extracts to perform badly. In this situation you could set `_OPTIM_PEEK_USER_BINDS=FALSE` on the database level, and then add `dbpeekbinddex=1` to the cnf.ini file. That way all Data Extracts will issue an “alter session” statement in order to enable bind peeking for the session only. Likewise if you have third party applications accessing the SimCorp Dimension database, which require bind peeking, you can remove (reset) the `_OPTIM_PEEK_USER_BINDS` parameter from the database (as it defaults to true), and then set `dbpeekbindmain=0` in the cnf.ini file. If you want to ensure SimCorp Dimension's use of bind peeking for Data Extracts and avoid bind peeking on general functionality, regardless of the database setting, you should set `dbpeekbinddex=1` and `dbpeekbindmain=0` in the Cnf.ini file.

For more information on the Oracle bind peeking feature, please refer to the Oracle documentation.

#### 4.2.1.12 Archiving Related Parameters

The following are examples of parameters (specified in the `[config]` section of the Cnf.ini file) related to archiving of data from SimCorp Dimension:

```
;archdir : Oracle directory for archiving

archdir=SCARCHDIR

;archcompressfiles : specify if compressed external
; files should be used (COMPRESSION ENABLED)
; 0=Not Enabled, 1=Enabled

archcompressfiles=1

;archparallelselect : the degree of parallelism
;to be used when querying the data to archive

archparallelselect=4

;archparallelinsert : the degree of parallelism and the
;number of files to use when archiving

archparallelinsert=4
```

**Note** When archiving audit data the parallel options are only applicable if an Audit Translation Server has been defined and is running.

**Note** Remember to check directory path for the Oracle directory containing SimCorp Dimension archive data after a copy between e.g. Prod and Test. If the path differs between the production and the test system, the directory object must be recreated in test, to point to the correct location.

Please also refer to section 6.2.2 “Audit Trail”.

#### 4.2.1.13 CHECK Constraints

If you have a particular case where constraints are validated and this is causing bad decisions by the Oracle Optimizer, then you can set a parameter which will force a session event that asks the Optimizer not to consider the validated constraints.

```
; dbchecknopred : Cost Based Optimizer (CBO) should not
;                 generate extra predicates from CHECK
;                 constraints

dbchecknopred=1
```

**Note** The above mentioned parameter should only be set after consultation with SimCorp and you have verified this is the reason for the Optimizer’s bad choice. If you are not experiencing such performance problems, you should not set this parameter.

#### 4.2.1.14 Unified Logging

The parameter `UnifiedLogging` controls how log messages are saved:

```
;unifiedlogging=1 : Logmessages are saved in files (Traditional)
;unifiedlogging=2 : Combined mode, log messages are saved in files and
on the database. Logs shown in SimCorp Dimension are those from the
log files
;unifiedlogging=3 : Combined mode, log messages are saved in files and
on the database. Logs shown in SimCorp Dimension are those from the
database

;Default value:
unifiedlogging=1
```

By using Unified Logging log messages are saved in the database and can be shown as log files or searched across log files in the System Manager.

### 4.2.2 Message and User Control System (MUCS)

The MUCS server acts as a message server and controls the flow of internal messages and events between SimCorp Dimension sessions, using the TCP/IP protocol.

The Message and User Control System server is installed to run on a dedicated host.

The computer name and port number of the host used for MUCS is stated in the *…\Data\Cnf.ini* file:

```
Mucs=DK01WP4017,5223
```

The MUCS server information can also be obtained from within SimCorp Dimension **System Environment Configuration** as described in section 6.6.7.4 “Changing the MUCS Server”.

#### 4.2.2.1 MUCS Failover Configuration

The MUCS server is a very central component in SimCorp Dimension. It is possible to monitor and keep track of the MUCS status. It is also possible to define a failover MUCS, which is a secondary MUCS process, running in a passive state while keeping contact with the primary and active MUCS.

If the secondary MUCS cannot establish contact with the primary MUCS, it becomes active, and SimCorp Dimension sessions will automatically use the ‘new’ active MUCS. When the primary MUCS is started again, it will remain passive until the secondary (and now active) MUCS is stopped (or fails), where after the primary MUCS again is active and the cycle can be repeated.

A failover MUCS is defined in the configuration file (Cnf.ini) with the following parameters:

```
Mucsfailover=[Host],[port]
```

Optionally an email address can be defined:

```
Mucsfailoveremail=[email]
```

If defined, an email will be sent to that address by the MUCS process taking over.

Emailing is only possible if SMTP has been configured on the host of the MUCS taking over control, as described in section 4.1.1 “Mail System Configuration”, requiring that the variables MAPISENDSMTPSERVER and MAPISENDSMTPUSER are set and have contents.

### 4.2.3 Communication Server

The SimCorp Dimension Communication Server is an integration tool used for message based interfaces to third parties such as SWIFT, XML data exchange and others.

The Communication Server processes messages between SimCorp Dimension and third party systems. The messages from the third party systems are passed internally in SimCorp Dimension using Oracle Streams Advanced Queuing. Other technologies are available for external communication. Please refer to the online help for a list of available port technologies.

The Communication Server requires a separate Oracle tablespace. The tablespace must as a minimum be created with UNIFORM extent size of 128K or created as Automatic Segment Space Management (ASSM) due to the use of user defined objects in Oracle, for instance:

```
CREATE TABLESPACE scqueue
DATAFILE 'd:\oracle\oradata\orcl\scqueue01.dbf' SIZE 102408K
AUTOEXTEND ON NEXT 50M MAXSIZE 2047M,
         'd:\oracle\oradata\orcl\scqueue02.dbf' SIZE 102408K
AUTOEXTEND ON NEXT 50M MAXSIZE 2047M
EXTENT MANAGEMENT LOCAL
UNIFORM SIZE 128K;
```

The actual name of the queue tablespace, the placement of the data files and AUTOEXTEND clause are configurable, and should be changed to fit the actual database.

| Note | If the Communication Server queues tablespace is created with an extent size less than 128K, unexpected errors may occur |
|---|---|

The SimCorp Dimension data owner (SCDAT) must be granted an unlimited quota on the queue tablespace, for example:

```
ALTER USER scdat QUOTA UNLIMITED ON scqueue;
```

Creation of the user schema for the Communication server is done from **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Database User Schemas Administration**. When creating the schema or running the function **Recreate Schema** the system will prompt for name and password of an Oracle DBA user with appropriate permissions.

For instance, if the Oracle user System is used the following permissions must be ensured for System:

```
GRANT EXECUTE ON DBMS_AQ TO system WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_AQADM TO system WITH GRANT OPTION;
BEGIN
DBMS_AQADM.GRANT_SYSTEM_PRIVILEGE(Privilege=>'MANAGE_ANY',
Grantee=>'SYSTEM', Admin_Option=>TRUE);
COMMIT;
END;
/
```

The requirements for tablespace, quota and permissions also apply to earlier versions of SimCorp Dimension.

To install and configure a Communication Server solution, various third party software products are needed. SimCorp supports a number of different port technologies to third party interfaces. They have to be installed and configured by the client as part of the implementation. SimCorp does not support or maintain any third party software products.

Before the Communication Server can be implemented configuration must be done in SimCorp Dimension. Amongst others the parameters on **Interface Options Communication Server** must be reviewed.

Please refer to SimCorp Dimension ***Communication Server*** User Manual for more information.

### 4.2.4 Service Host Server

The **SERVICE HOST** is supported to run on the same OS and with the same prerequisites as other types of SimCorp Dimension servers, meaning the host machine must be configured as for any other SimCorp Dimension Application Server. In addition the below should be ensured.

#### 4.2.4.1 Registration in Server Administration

Before starting the **SERVICE HOST** it must be registered in SimCorp Dimension in the task **MAINTENANCE** > **SERVER ADMINISTRATION** > **Server Administration**, with `Server Type=Service host server.`

The **SERVICE HOST** does not use a SimCorp Dimension Reference File as log file. Instead the log file is system specified and placed in the logging directory specified in the cnf.ini file by one of the entries `serverlog`, `log`, or `windows %TEMP%`. The priority is as follows:

1. `serverlog`
2. `log`
3. the Windows `%TEMP%` folder

If neither `serverlog` nor `log` is present, then windows %TEMP% will be used as the logging directory.

All messages that are written to the console or the Windows Event Log are also written to the log file. The file is placed in a subfolder to the SimCorp Dimension installations Log folder as stated above. Every server instance gets its own folder and log file with server ID and timestamp as part of the naming. The exact filename can be found on the console, the log window and in the Windows Event Log

#### 4.2.4.2 Port Sharing

Usually the communication on the LAN uses an arbitrary free port for the TCP communication. If it is not possible to use arbitrary ports e.g. when there are firewalls between the client and the service, a specific port can be used for all communication. This is accomplished by using the `–port` option. In order for this to work, the **NetTcpPortSharing service** must be enabled and configured.

| Note | The Microsoft Windows service called the **Net.Tcp Port Sharing Servic**e is required only when the `-port` command line option is used to start the Service Host Server. In all other cases the **Net.Tcp Port Sharing Service** is not needed. |
|---|---|

The **Net.Tcp Port Sharing Service** is used to facilitate sharing of TCP ports across multiple processes as well as multiple service endpoints within the same process. The service is part of the Microsoft .NET Framework from 3.0 and must, in the cases mentioned above, be enabled on the machine(s) running the **SERVICE HOST**.

A description on how to enable the service can be found in: http://msdn.microsoft.com/en-us/library/ms733925.aspx. Also, there is an example configuration file for the service. Configuration is optional. It is only necessary for configuring user authorization (such as, if the Service Host is executed as user with restricted privileges) or for changing connection backlog behaviour (for instance because of unusually high connect/disconnect rates).

To configure the service, create an XML configuration file named SMSvcHost.exe.config and place it in the same physical directory as the SMSvcHost.exe executable (for example, C:\Windows\Microsoft.NET\Framework\v3.0\Windows Communication Foundation). A description of the attributes can be found in: http://msdn.microsoft.com/en-us/library/ms788997.aspx.

#### 4.2.4.3 Service User Account

The **SERVICE HOST** can be started from the command line or as a Windows service. Appropriate access rights for the account starting the **SERVICE HOST** executable have to be setup. This is the same as for all other SimCorp Dimension server types, started as a service. That is, the account needs to have the

- Permissions to the SimCorp Dimension files and folder structure. See section 7.9 “Folder Permissions”
- Right to “log on as a service” if the **SERVICE HOST** is run as a Windows service
- The right for accepting incoming calls via the **NetTcpPortSharing** service. See the homepage referenced in section 4.2.4.2 “Port Sharing”, at the <allowAccounts> section. This section contains all users, which are allowed to receive such calls.

#### 4.2.4.4 Authentication Configuration in SimCorp Dimension

There are two parameters related to the **SERVICE HOST** authentication in the Cnf.ini file **[config]** section:

1. `SvcAuthMode` (default: 1, no authentication)
2. `SvcEncryptMode` (default: 0, no encryption of data)

The configuration can be done on the **Services** tab in the **System Environment Configuration** task.

The parameter, `SvcAuthMode`, specifies the authentication mode (how service authentication is performed). `SvcAuthMode=0` means that no authentication is used on operating system level. The authentication is restricted to a simple validation of the SOAP headers during communication. Disabling the authentication is only useful where Windows authentication is not possible, e.g. when client and server machines or users don't reside within the same domain. `SvcAuthMode=1` specifies that default Windows authentication without NTLM fallback is being used in service authentication.

`SvcEncryptMode=1` specifies that messages transferred over network will be encrypted.

If encryption of messages that are transferred over the network is required, a typical configuration would be to enable Windows default authentication (`SvcAuthMode=1`) and encryption (`SvcEncryptMode=1`).

| **Note** | Encryption can only be enabled if `SvcAuthMode` has been enabled. |
|---|---|

The possible and default values in the Cnf.ini file:

```
; .NET Server Framework Settings
;SvcAuthMode=0    : No Authentication - DEFAULT
;SvcAuthMode=1    : Default Windows Authentication
;
;SvcEncryptMode=0 : No Encryption of data - DEFAULT
;SvcEncryptMode=1 : Encryption of data
;

SvcAuthMode=0
SvcEncryptMode=0
```

#### 4.2.4.5 Service Isolation of Service Host in SimCorp Dimension

The parameter `SvcIsolationMode` (default: 0, shared process is used) in the Cnf.ini file **[config]** section is related to the way **SERVICE HOST** processes are handled.

The parameter specifies service isolation mode. If `SvcIsolationMode=0` the default is used and all services will be hosted in the same process as the **SERVICE HOST**.

If `SvcIsolationMode=1` services that are started with the physical isolation mode will be running in their own process. Any error will affect only that particular service, and neither the host nor other services that are hosted on the same host

| **Note** | `SvcIsolationMode=1` should only be used if there are frequent errors with services that terminate the host process. |
|---|---|

```
; .NET Service isolation Settings
; SvcIsolationMode =0: Service is hosted in the shared process with
host
; SvcIsolationMode=1: Service is hosted in its own separate process
;
```

#### 4.2.4.6 Service Metrics in SimCorp Dimension

There are four parameters related to the **SERVICE HOST** in the Cnf.ini file **[config]** section:

1. `SvcServiceMetricsEnabled` (default: 1, service metrics is enabled)
2. `SvcNearRealtime` (default: 500, expected response time is within 500 milliseconds for NearRealtime service host service call when `SvcServiceMetricsEnabled=1`)
3. `SvcOnlineRequest` (default: 5000, expected response time is within 5000 milliseconds for OnlineRequest service host service call when `SvcServiceMetricsEnabled=1`)
4. `SvcLongRunning` (default: 1200000, expected response time is within 1200000 milliseconds for LongRunning service host service call when `SvcServiceMetricsEnabled=1`))

The parameter, `SvcServiceMetricsEnabled`, declares service metrics mode. `SvcServiceMetricsEnabled=1` specifies that service metrics are enabled. The system will check the response time for individual service calls and warn if expected response time is exceeded. Performance measurement is done at both service and client side and logged as warning. (The warning log will be saved as defined in 4.2.1.14 “Unified Logging”).

The service metrics are useful for detecting performance degradation, and can be valuable input for support cases. Values of expected response times are predefined for the three parameters `SvcNearRealtime`, `SvcOnlineRequest` and `SvcLongRunning`. If `SvcServiceMetricsEnabled=0` the service metrics are not enabled and the system will not check if expected response time exceed the expected values.

The parameters `SvcNearRealtime` , `SvcOnlineRequest`, `SvcLongRunning` values in milliseconds. If not specified in cnf.ini file, default value will be used and can be overruled using the corresponding settings in **System Environment Configuration**.

The possible and default values in the Cnf.ini file:

```
; .NET Service metrics Settings
; SvcServiceMetricsEnabled=0: Service metrics is not enabled
; SvcServiceMetricsEnabled=1: Service metrics is enabled -DEFAULT
;
;
; SvcLongRunning = 1200000 – expected LongRunning service call is
:within 1200000 milliseconds DEFAULT
; SvcNearRealtime = 500 - expected NearRealtimservice call is :within
500 milliseconds DEFAULT
; SvcOnlineRequest = 5000 - expected OnlineRequest service call is
:within 5000 milliseconds DEFAULT
;
```

### 4.2.5 Service Agent

SimCorp Dimension version 5.5 will introduce the Service Operations Platform for managing the server side of SimCorp Dimension. The Service Agent is an executable (ScvSvcAgent.exe) that is used to start the platform. That executable is already present in version 5.4, and can be used for testing the platform in isolated test environments. For further information please contact Your SimCorp representative.

### 4.2.6 Data Extractor

The Data Extractor is a SimCorp Dimension utility which can extract selected data from the SimCorp Dimension database schema to a different schema. Data in this schema can then be used in many ways, for example for data analysis, offloading heavy reporting from the SimCorp Dimension database, etc.

When preparing the Data Extractor, a number of tasks require some action on the Oracle database to be carried out by an Oracle DBA from outside SimCorp Dimension. These are:

- Creation/deletion of separate tablespaces in Oracle.
- Creation/deletion of external extract user schemas (can be registered in SimCorp Dimension after creation)

All other actions on the Oracle database for the Data Extractor can be done without any other privileges than the ones from the SimCorp Dimension user role.

Please refer to the SimCorp Dimension ***Data Extractor*** User Manual for more information on how to configure and use the Data Extractor from within the application.

#### 4.2.6.1 Creation of Extract Tablespaces

The Data Extractor extracts data into separate 'extract user' schemas. These users cannot use the existing SimCorp Dimension tablespaces. This is to prevent the Data Extractor from filling the SimCorp Dimension core tablespaces to their limit and by doing so affecting the stability of SimCorp Dimension.

A new tablespace should be created by the DBA. An example SQL command can look like this:

```
CREATE TABLESPACE DEX_TS
DATAFILE
   'dex_ts_01.dbf' SIZE 102408K AUTOEXTEND ON NEXT 50M MAXSIZE 4095M,
   'dex_ts_02.dbf' SIZE 102408K AUTOEXTEND ON NEXT 50M MAXSIZE 4095M
EXTENT MANAGEMENT LOCAL
UNIFORM SIZE 128K;
```

The command above creates a new tablespace with the name DEX_TS, based on two data files. Both data files will be created with an initial size of 100 MB. If required, they will grow in steps of 50 MB up to a maximum size of 4 GB each. If more space is needed, more data files can be added to the tablespace. Large SimCorp Dimension installations might require multiple tablespaces for the extract users.

If primarily large tables are extracted a larger UNIFORM SIZE (for instance `1M`) should be considered.

Adjust the name of the tablespace and the names and locations of the data files to fit the current environment before running the command above. If it is possible, define several data extractor schemas and tablespaces.

If the database setup allows, it is advisable to place the tablespace data files on separate disks from that of the other SimCorp Dimension tablespaces. This can accelerate the Data Extractor while copying large amounts of data (doing large data extracts) from SimCorp Dimension.

In addition the SimCorp Dimension data owner (SCDAT) must be granted quota on the newly created tablespace:

```
ALTER USER SCDAT QUOTA UNLIMITED ON DEX_TS;
```

These instructions are also applicable to earlier versions of SimCorp Dimension when creating Extract tablespaces.

#### 4.2.6.2 Creation of Extract User Schemas

There are several types of extract user schemas:

##### Internal Extract User Schemas

Extract user schemas are created by the SimCorp Dimension application from **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Database User Schemas Administration**. Such an extract user schema is then called **internal**. It is recommended that you only use internal extract user schemas, since their contents (extract tables, etc.) can then be maintained by SimCorp Dimension.

Internal extract user schemas automatically get the system privileges: ALTER SESSION, CREATE PROCEDURE, CREATE SESSION, CREATE TABLE and CREATE TRIGGER granted when they are created by the SimCorp Dimension application.

##### External Extract User Schemas

The Data Extractor can also use extract user schemas which are created by an external tool. Such extract user schemas are in the Data Extractor's context called **external**. The use of external extract user schemas should only be considered if client specific tables have to be created in an extract user schema. Maintenance of external extract user schemas cannot be performed from SimCorp Dimension.

External extract user schemas must at least have the ALTER SESSION, CREATE PROCEDURE, CREATE SESSION, CREATE TABLE and CREATE TRIGGER system privileges granted. The external extract user schema cannot be registered in SimCorp Dimension for use by the Data Extractor before these grants have been made.

##### Data Warehouse User Schemas

The **data warehouse** user schema type is created from outside SimCorp Dimension and afterwards registered in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Database User Schemas Administration**.

Data warehouse user schemas must at least have the CREATE SESSION system privilege. The data warehouse tables are also created from outside SimCorp Dimension with at least SELECT, INSERT, UPDATE and DELETE privileges granted to either the specific user who will make data extracts or to a DEXROLE.

Like the **external** user schemas, **data warehouse** user schemas cannot be created or modified from SimCorp Dimension, neither can the staging tables.

This schema type has also been referred to as a staging user schema.

##### 4.2.6.2.1 Default Tablespace

Every extract user regardless of whether it is Internal, External or Data warehouse must have a default tablespace associated with it. This should be the tablespace prepared for the Data Extractor as described in section 4.2.6.1 "Creation of Extract Tablespaces".

| Note | It is strongly recommended that you do not choose Oracle's SYSTEM or SYSAUX tablespaces as the default tablespace for the extract user schemas because this will have a severe negative impact on the system performance. |
|---|---|

#### 4.2.6.3 Quota

No matter if the extract user schema is **Internal** or **External**; it is recommended that you set up a quota restriction to prevent uncontrolled growth. This can be done in SimCorp Dimension using **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Database User Schemas Administration** or in SQL*PLUS (or any other Oracle CLI) when the user has already been created using the SQL command, for example:

```
ALTER USER DEX_USER QUOTA 10M ON DEX_TS;
```

The command limits the extract user DEX_USER to use no more than 10 MB of space on the tablespace DEX_TS.

Besides setting a quota limit for the actual extract user schema, quotas should also be defined for all the users who are authorised in the SimCorp Dimension installation to use the Data Extractor. For instance, if users XXX and YYY are authorised to use the Data Extractor, the following must also be done:

```
ALTER USER XXX QUOTA 10M ON DEX_TS;
ALTER USER YYY QUOTA 10M ON DEX_TS;
```

Adjust the quota limit and the names of tablespace and user to fit the actual needs before running the commands.

### 4.2.7 Oracle Active Data Guard

It is possible to run Data Extractor queries on a standby database using Oracle Active Data Guard (ADG). This is to mitigate system load on the production database. The functionality is enabled in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **System Environment Configuration** at the tab **Standby DB** Where it is possible to state the database name or the connection string to the standby database. Beside the connection information it is possible to state **Default timeout** which defines the amount of time (in seconds) for the Data Extractor to wait for a standby database to be synchronized with the primary database.

| **Note** | Default timeout affects only the Data Extractor. |
|---|---|

### 4.2.8 Local Time in Global Environments

Local time is available for system events, for example in the following:

- Messages sent via the Communication Server
- Files imported into SimCorp Dimension
- Reports
- Windows in SimCorp Dimension

A common time stamp is applied to business data according to that of the database server. This common time is applied to the following:

- Logs files
- Data extracts

#### 4.2.8.1 Set up the Database Time Zone

Set up the database time zone in the Cnf.ini. Use the Olson name standard.

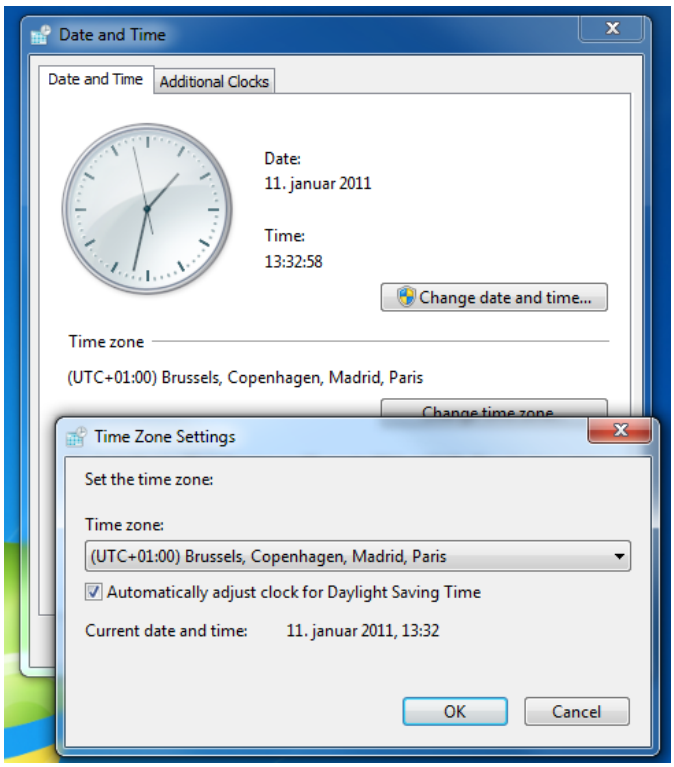
| Note | There is no default value for the Database TimeZone parameter. Instead, if the parameter is not set the time zone functionality will be disabled. |
|---|---|

```
…
;Database time zone
DatabaseTimeZone=Europe/Paris
```

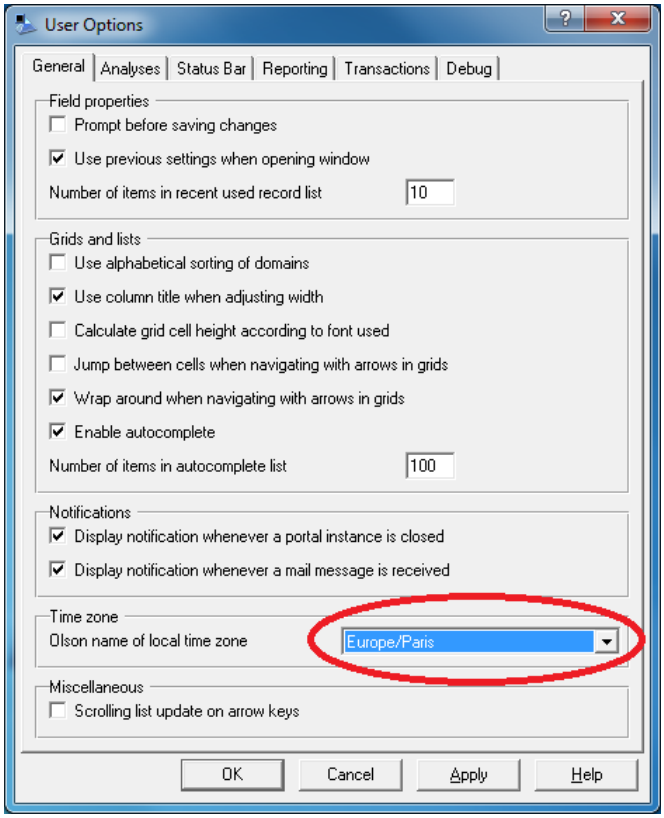
The database time zone will appear in the **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Database Parameters** task on the **Connection** tab.

There are two ways of setting the local time zone:

Either set up the local time zone in the Microsoft Windows Date and Time Properties window on the client:



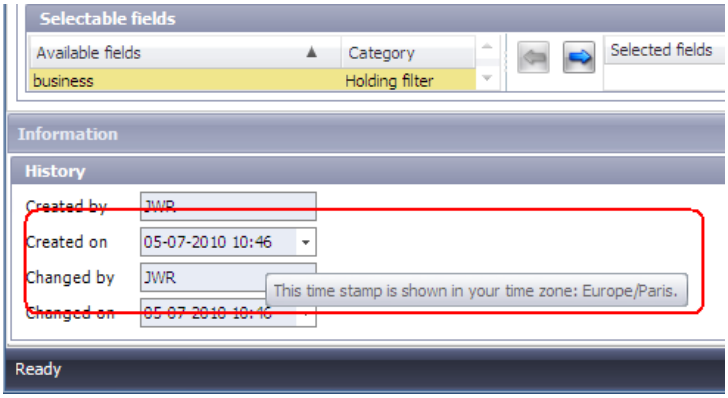
Or, when the time zone cannot be determined from Microsoft Windows, set up the local time zone in the **User Options** window in SimCorp Dimension:




In order to initiate the local time zone setting it is then necessary to log off from SimCorp Dimension and then log on again.

**Note** Please refer to Olson Time Zones – e.g. http://en.wikipedia.org/wiki/Tz_database to see a list of time zones.

A ToolTip appears in all windows with time stamps, which shows when a local time stamp is being used.



## 4.3 Module Specific Configuration

### 4.3.1 Crystal Reports Runtime

The Crystal Reports runtime requires a separate installation activity, as described in section 3.3.4 “Crystal Reports Runtime”.

When installed, the Crystal Reports runtime requires no additional configuration. However, please be aware of a known issue as described in section 8.10.4 “Missing Crystal Reports Installation File on Windows Server 2008 R2”.

If designing customised reports to be run from SimCorp Dimension, the product SAP Crystal Reports 2011 is required. Licenses specifically for use with SimCorp Dimension are available for purchase from your SimCorp representative.

| | |
|---|---|
| **Note** | If the Crystal Reports installation package supplied with SimCorp Dimension is not installed, an alternative solution for executing reports must be supplied, if required. Such a solution is outside the scope of SimCorp Dimension and must be maintained separately. |
| **Note** | Please refer to section 8.10 “SAP Crystal Reports” for known issues relating to Crystal Reports. |

#### 4.3.1.1 Executing Reports

When executing reports with external tables and views, please ensure that the database administrator gives appropriate permissions to the SimCorp Dimension data owner:

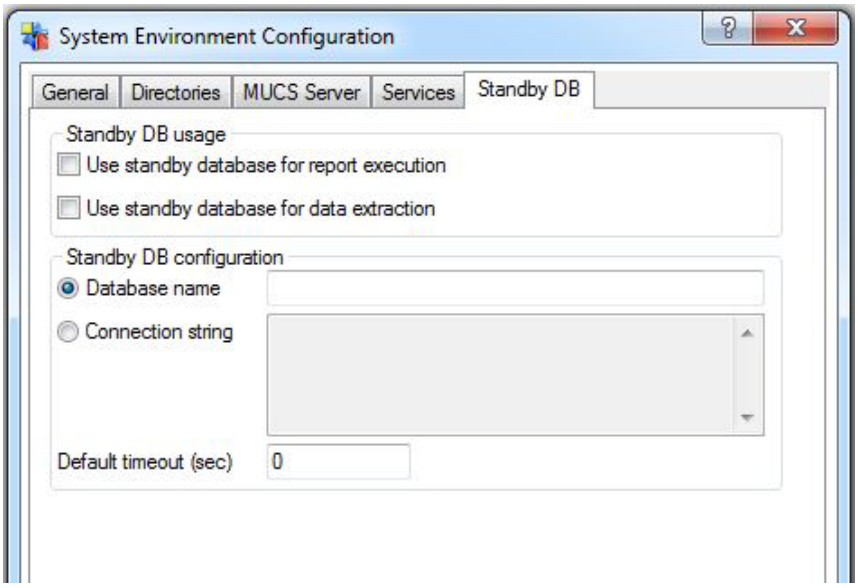
```
GRANT SELECT ON <ext table/view> TO <data owner> WITH GRANT OPTION
```

Otherwise the users in SimCorp Dimension will not be able to execute these reports.

For more information on SimCorp Dimension users please refer to section 6.5 “User Management” and section 7.11 “User Privileges”.

### 4.3.2 Oracle Active Data Guard

It is possible in SimCorp Dimension to use a standby database when executing reports or Data Extractor queries. SimCorp Dimension uses Oracle Active Dataguard (ADG) that means that standby database should be installed. After installation either the standby database name or the Connection string needs to be specified on the **Standby DB** tab in the **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **System Environment Configuration** task:




If ADG is used it is necessary to specify either Database name or Connection string. Standbydbname can only be used if the TNS names (tnsnames.ora) access is configured.

Connection string can be used without TNS names are configured.

Neither Database name nor Connection string can be the same as the current database instance but must point to a configured standby database.

**Note** The **Standby DB** tab is visible when the functionality is purchased and present in the ins.ini file.

**Note** Default timeout is only used with the Data Extractor.

The document ***Oracle ADG Preferred installation and configuration for SimCorp Dimension*** is available from SimCorp on request.

### 4.3.3 Order Manager

After installation or upgrade Order Manager needs separate configuration. This is detailed in the ***Front Office Implementation Guide***, which is available in the online help.

### 4.3.4 Report Book Manager

The **REPORT BOOK MANAGER** module in SimCorp Dimension uses third party software. Please refer to your SimCorp representative for further details on this.

# 5 Installation and Upgrade

This chapter gathers all guidelines to installation, upgrade and patch activities along with some additional descriptions on preparing for these activities and for utilising Central Network Installation and Local Installation, respectively.

## 5.1 Installation and Upgrade Considerations

While both the initial installation and version upgrades of SimCorp Dimension are being performed by SimCorp in cooperation with the client, there are some preparation steps that should be considered before initiating any of these activities. This section lists these considerations.

### 5.1.1 Oracle RDBMS

Because the installation program will automatically create the necessary SimCorp Dimension schemas, objects and users in the Oracle database, there are a few things to consider before an installation:

If you want the SimCorp Dimension users to be authenticated by the operating system, then you should consider which Oracle prefix you want for users who are authenticated by the operating system. The Oracle parameter “os_authent_prefix” (in init.ora) should be set to the prefix you wish to use. The recommended setting and Oracle default is “OPS$”. Be aware that if you change it, you may cause trouble for existing operating system authenticated users/schemas. In addition, it is strongly recommended that you do not use blank, as this can have unintended effects (please refer to section 6.5.2 “Unattended Logon” for more information.

| Note | As noted in section 6.5.2 “Unattended Logon” REMOTE_OS_AUTHENT has been deprecated by Oracle, but remains supported, even in the recent Oracle 12c release. An optional alternative way of achieving unattended logon is planned for SimCorp Dimension 5.5. |
|---|---|

In all cases before installation:

- You need to decide on the profile name to be used by SimCorp Dimension users and which default tablespace they should use. No SimCorp Dimension data is actually stored in the users default tablespace.
- You need to decide on the systemprofile name. The systemprofile is used for specific SimCorp Dimension users for special system purposes, such as e.g. SERVER and BATCH where passwords should not be changed frequently. This profile has PASSWORD_LIFE_TIME=UNLIMITED and SESSIONS_PER_USER=UNLIMITED.
- You must decide if you will allow that SimCorp Dimension Normal, Server and Batch type users logging on to the database instance should be authenticated by the operating system. This means that SimCorp Dimension and Oracle will accept that your operating system user is valid and will not prompt for a password for these type users. The Oracle parameter `REMOTE_OS_AUTHENT` must in this case be set to `TRUE` (in init.ora).

Certain specific privileges are needed during installation and upgrade (which can be granted to a dedicated DBA user, to be used for the installation/upgrade). Section 7.12 “Installation and Upgrade Privileges” lists these privileges, for reference. For all privileges it is presumed that the user SYS (SYSDBA) is the grantor.

The Oracle user used for the installation/upgrade cannot be the SimCorp Dimension data owner (SCDAT).

Other considerations about users:

- Oracle users created from within SimCorp Dimension will be assigned the database default temporary tablespace.
- The SimCorp Dimension Oracle users will have no privileges except CREATE SESSION. Privileges to view and manipulate SimCorp Dimension data will be given when the user logs into the actual SimCorp Dimension installation. Privileges are given by using an Oracle password protected role. The password is provided by the application. (Please refer to section 7.11 “User Privileges” for more information).
- Logging of user logon activity in SimCorp Dimension should be set up using standard Oracle utilities for this. In order to activate this you should ensure that Oracle audit trail (not to be confused with SimCorp Dimensions audit trail) is switched on. This is done by setting the Oracle parameter AUDIT_TRAIL to the value `DB`, which when system-wide auditing is enabled will cause audited records to be written to the database audit trail. (Please refer to section 6.5.5 “Auditing Database Logon Activity”).
- The dedicated DBA user who grants object privileges must remain in the database along with the object privileges granted. The user can be safely be disabled but needs to remain.

### 5.1.2 SimCorp Dimension Services Using Local Installation

It is possible, for the same reasons that apply to normal users’ sessions, to let SimCorp Dimension servers (for instance MUCS, Calculation servers, Communication servers etc.) be run using a Local Installation. However, if the SimCorp Dimension server is run as a Windows service, there are a few issues to be aware of:

- If the Windows services have been installed by using the network path to the Central Network Installation, the service should be uninstalled, before installing it again, this time using the path to the Local Installation’s `Bin` folder.
- When an update is required after changing the Central Network Installation, for example by applying a patch, installation file or other central configuration, the SimCorp Dimension server must be started in interactive mode (and shut down again) in order for the update to take place. Using the Windows service to start the SimCorp Dimension server, where an update is required, will result in an error.

### 5.1.3 Use of ROOT for File Placement

SimCorp Dimension contains various system configurations where Windows paths are supplied. This could for example be **DATA** > **REFERENCE DATA** > **Miscellaneous Codes** > **Reference Files**, where the placement of the file is part of the definition, or **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **Miscellaneous Options** where the directory for the transfer file used for the STP queues is defined.

Common for these definitions is that the keyword ROOT can be used as part of the path definition. You should be aware that ROOT refers to the installations root directory seen in relation to the installations starting point. For instance, if SimCorp Dimension is started from the central network location using

```
\\SCFILE\SCDimension\Prod\Bin\scd.exe
```

ROOT will be identical to NETROOT and point to `\\SCFILE\SCDimension\Prod`, whereas if SimCorp Dimension is started as a local installation using

```
C:\Program Files\SimCorp\SimCorp Dimension\Bin\scd.exe
```

ROOT will point to `C:\Program Files\SimCorp\SimCorp Dimension`.

If the intention is that files should be written to folders in the SimCorp Dimension Central Network Installation location, even when the session writing them is started from a local installation, please use the UNC path to the destination or use an abbreviation stated in the CNF.ini [lib] section.

## 5.2 SimCorp Dimension sessions

SimCorp Dimension can be run in one of two ways: from the Central Network Installation or from a Local Installation. The Central Network Installation must however always exist, even when running the Local Installation.

SimCorp Dimension includes and connects to the database using Oracle Instant Client, meaning that no additional Oracle client software is required on the PC in order to run SimCorp Dimension.

A number of parameters can be specified in the *Cnf.ini* file, which makes altering the Windows registry unnecessary. Please refer to section 4.2.1.1 “Database Connectivity Parameters” for more information.

If, however, the entry `dbname=` has been specified in the `Cnf.ini` file, the Oracle Instant Client requires the Registry string value `TNS_ADMIN` to be defined in `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE` and it must point to the folder containing the Oracle Tnsnames.ora and Sqlnet.ora files in order to run SimCorp Dimension. For example under the key `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE`, the string value `TNS_ADMIN` must be created with the value `\\filesrv\root\OracleNet\TNS_Admin`, if the files are placed in that folder on the network. More information on `dbname=` and the Cnf.ini file can be found in section 4.2.1.1 “Database Connectivity Parameters”.

| | |
|---|---|
| **Note** | The Sqlnet.ora file must contain an entry specifying `DIAG_SIGHANDLER_ENABLED=FALSE`. If this entry is not present SimCorp Dimension sessions fault handling will not work as expected and can seriously affect the troubleshooting process. For more information on this Oracle published issue see Oracle doc id 779996.1. |

SimCorp Dimension automatically sets the character set used for communication with the database at session start up, based on the active codepage on the host running the session.

However, other products used on the client, for example reporting tools, may rely on `NLS_LANG` being defined. If `NLS_LANG` is not set in `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE` the language and territory for the SimCorp Dimension session will be inherited from the Oracle database instance. By default this is AMERICAN language, territory AMERICA and client character set depending on the client active codepage, which e.g. on a Western European Windows PC would be equivalent to specifying the string value `NLS_LANG` with value `AMERICAN_AMERICA.WE8MSWIN1252` under the key `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE`.

In regards to database character sets and their use please refer to section 4.1.4.3 “Supported Database Character Sets”.

SimCorp Dimension is release tested using NLS language AMERICAN and territory AMERICA. Changes to these NLS parameters on client or database, should warrant thorough testing of the application, as these parameters influence values for other database NLS related settings, such as sort order and numeric characters.

| Note | Please be aware that NLS_LANG or TNS_ADMIN can be defined as environment variables on the PC. The settings for the environment variables will overrule the Registry settings. Therefore, if environment variables for these settings are used, these must be defined appropriately. |
|---|---|

If access to the database is needed from third party tools, for report development, export of data etc. it will be necessary to install Oracle client software on the PC. In this case please refer to Oracle documentation for information on how to install and configure Oracle connectivity.

SimCorp Dimension utilises the Microsoft .NET Framework. It must be installed on the client and full trust must be given to the Central Network Installation. Please refer to section 4.1.3.1 “Configuring .NET”.

In addition, users who need to design and develop reports will require an installation of SAP Crystal Reports 2011.

As stated in the introduction to this section SimCorp employs two solutions for starting the SimCorp Dimension client: from the Central Network Installation or by the use of a client installation installed locally (Local Installation) on the host where the user is running the application. The application is started by executing the scd.exe file located in the installations Bin folder.

When a user starts SimCorp Dimension by executing the scd.exe from the Bin folder situated in the Central Network Installation registry entries on the client PC are updated. Please refer to section 4.1.2.1 “Registry Keys”.

If running SimCorp Dimension from the Central Network Installation, the only other thing needed on the client is a shortcut to the SimCorp Dimension executable (scd.exe) in the Bin folder on the network – no special SimCorp Dimension client setup program needs to be run on the client PCs in this case.

In order to create a shortcut to the SimCorp Dimension Portal:

1. Browse to scd.exe in the relevant Bin folder
2. Create a new shortcut
3. Give appropriate name (use the same name as on the other PCs), for instance PROD, TEST, NEW

A list of the required Windows folder permissions to the SimCorp Dimension application folders can be found in section 7.9 “Folder Permissions”.

If a PC is used for on-line support from SimCorp, a few fonts and some additional software is needed. Please refer to your SimCorp representative.

Please refer to section 6.6 “Distributed processing”, for information on executing SimCorp Dimension batch jobs and application server processes.

Please refer to section 7.15 “Server as Windows Service” for information on how to configure a SimCorp Dimension application server to run as a service.

### 5.2.1 Central Network Installation

The installation of SimCorp Dimension on the file server is called the Central Network Installation, and it is in general possible to run all SimCorp Dimension clients and application servers from this installation. Sometimes it makes sense to additionally create a Local Installation for all or some purposes, as described in section 3.1.11 “Network Communication”.

Setting up and running clients by accessing the executables in the Central Network Installation is described in section 5.2 “SimCorp Dimension”.

The Central Network Installation must always exist, even if all users are using Local Installation. This has two good reasons:

1. All sessions, also those using Local Installation, may need to write to certain files in the Central Network Installation
2. There are some SimCorp Dimension tasks which are only possible in a session started from the Central Network Installation; these are listed in section 7.5 “Disabled Menu Items in a Local Installation”.

| **Note** | SimCorp Dimension versions prior to 5.0 required administrator privileges to run from a Central Network Installation. This restriction has been removed, so a central installation can be run by users with limited privileges. |
|---|---|

#### 5.2.1.1 Installation Process

The initial installation of SimCorp Dimension is being performed by SimCorp in cooperation with the client, in a process that ensures, among others:

1. Hardware and software requirements are examined and the necessary platform established
2. All needed servers are identified
3. All needed interfaces to other systems are identified and new interfaces developed
4. Run mode – Central Network Installation or Local Installation – is considered for all clients and servers

When installing SimCorp Dimension, at first the Central Network Installation is created, based on the installation media from SimCorp. The Central Network installation is installed once and the installation process will only be made this one time for the Central Network installation.

The overall setup and configuration of clients and servers, including the database server as well as application servers, utilising the Central Network Installation or Local installations, will be done partly during the installation process and partly afterwards – and actually these will typically be ongoing activities during the operation of SimCorp Dimension.

The installation project manager will be able to advice on what to prepare and how to participate during the installation process.

### 5.2.2 Local Installation

Local Installation is the SimCorp Dimension term for a physical installation of the program files on the client’s local hard drive. As opposed to starting the SimCorp Dimension session by remotely accessing the program files on the central network location, the client session is started by accessing the program files which has been installed locally. Please refer to the ***Local Installation White Paper*** for more information.

## 5.3 Upgrading SimCorp Dimension

It is possible to upgrade to SimCorp Dimension version 5.4 from either SimCorp Dimension version 5.3 or 5.2.

| Note | The actual upgrade of SimCorp Dimension is performed by SimCorp in accordance with current procedures. Further information about this is available from your SimCorp representative. |
|---|---|

Please read the documents ***SimCorp Dimension Upgrade – Align Objects and use of the Oracle Scheduler*** and ***SimCorp Dimension Upgrade – Controlling database resources*** before upgrading. Both are available from SimCorp Client Support.

### 5.3.1 Prerequisites for Upgrading to Version 5.4

Before upgrading the following SimCorp Dimension tasks must be run:

- **Check Database before Upgrading** – please refer to section 5.3.1.1 for details.
- **Verify Database Privileges** – please refer to section 6.1.6 “Verify Database Privileges” for details
- **Verify Database Settings** – please refer to section 6.1.7 “Verify Database Settings” for details
- **Verify Database Contents** – please refer to section 6.1.8 “Verify Database Contents” for details.
- **Verify Business Data** – please refer to section 6.1.9 “Verify Business Data” for details.

In addition the following must also be ensured in relation to the application, database, technology platform and third party software:

#### Application

Relevant for all upgrades:

- The SimCorp Dimension user SCTECHSVC must be enabled. This user is used by the SimCorp consultant performing the upgrade for running various check routines before and after the upgrade.
- It is strongly recommended that you archive audit trail data to reduce the upgrade and subsequent maintenance time. Please refer to section 6.2.2 “Audit Trail”.
- If the Communication Server Oracle Advanced Queues tables for non-DL (dead letter) queues contain messages, these must be processed before the upgrade is started. It is recommended to check that DL queues are empty.
- Please ensure any unapproved 4 Eyes Changes have been approved before the upgrade is engaged.
- Please ensure that no customised reports, filters or templates and definitions files have been saved to the StdIML, StdRep or StdFilt folders, as the upgrade procedure will delete all files in these folders before creating this version’s standard reports, filters, templates and definitions files.

#### Database

Relevant for all upgrades:

- The Oracle database must be minimum Oracle 11.2.0.3 with patches as specified in section 3.1.4 “Oracle RDBMS Patches”. This implies the database might require patching.
- Please refer to section 7.12 “Installation and Upgrade Privileges” for a list of Oracle system and object permissions required in order to perform the upgrade.
- The password for an Oracle user with appropriate privileges according to section 7.12 “Installation and Upgrade Privileges” should be made available for the consultant performing the upgrade.

- As an upgrade time saving measure it is strongly recommended to implement SimCorp performance optimised rewrite of the USER_CONSTRAINTS view, as described in section 4.1.4.12 “Viewing User Constraints – Optimised View”.
- Check Before Upgrade (CBU) needs the SimCorp view SCD_USER_TAB_COLS_ADDED to be installed to execute the CBU Please see: 4.1.4.13 “Viewing added columns information for further information
- The Oracle parameter PROCESSES must be set to a value greater than the sum of the values for (PARALLEL_MAX_SERVERS + JOB_QUEUE_PROCESSES + number of background processes). Please see the document ***SimCorp Dimension Upgrade – Controlling database resources***, which is available from SimCorp Client Support.
- To avoid exorbitant growth of undo space during the upgrade set `UNDO_RETENTION` to 60 for the duration of the upgrade.
- Consider if you prefer a temporary tablespace to be used for full copy of tables (aofullcopytablespace). Please note that this might cause a performance penalty. Please note that the tablespace contains the only copy of data until the SimCorp Dimension upgrade has finished error free.
- If the Oracle initialisation parameter `RECYCLEBIN` is ON it must be set to `OFF` for the duration of the SimCorp Dimension upgrade in order to limit disk space usage. During the upgrade many tables are dropped after data has been copied to the table in its new version format. If `RECYCLEBIN=ON`, Oracle keeps a copy of the dropped table in its recycle bin, potentially taking up large amounts of space, depending on the size of the tables which are dropped. The Oracle recycle bin serves no purpose during a SimCorp Dimension upgrade.
- Ensure that all jobs gathering statistics are disabled. This includes the predefined automated maintenance task “auto optimizer stats collection” as well as any other job gathering statistics on SimCorp Dimension objects. Also, consider disabling other jobs or automated maintenance tasks consuming databases resources and/or close any Oracle maintenance window planned to be open during the time of upgrade of SimCorp Dimension.

Depending on your current settings and use of SimCorp Dimension the following additionally applies:

- If user schemas have been defined for Data Extractor and/or Communication Server each schema listed in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Database User Schemas Administration** must be verified to be ok. The verification can be done using the drop-down menu **Functions** / **Verify Schema**. If any errors are reported these must be fixed before the upgrade and the verification performed again. This task must be repeated until no errors are reported.
- If the SimCorp Dimension **EXTERNAL DATA ACCESS** (EDA) module is used and enabled, please disable EDA in SimCorp Dimension (**MAINTENANCE > SYSTEM SECURITY > Security Options**) before the upgrade is engaged. Alternatively grant `EXEMPT ACCESS POLICY` to the Oracle user used for the upgrade and enter the Oracle user name in **Privileged Users** in SimCorp Dimension.

### Technology Platform

- A DVD format +/-R read compatible drive must be available from the PC used for the upgrade.
- If the content of the DVD is copied to a network folder, in order to run the upgrade program from there, it must be copied to a trusted site. The location must then be added to the zone “Local Intranet” (not just “Trusted Sites”); otherwise it will not be possible to execute Install.exe.
- The Registry on the PC used for the upgrade, may need to contain a `TNS_ADMIN` string value in `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE` (if this connection method has been chosen) as described in section 5.1 “Installation and Upgrade Considerations”.

- The Windows user doing the upgrade must be administrator on the PC used for upgrade.
- The Windows user used for the upgrade must have full administrative permissions to the root folder and all subfolders of the SimCorp Dimension installation to be upgraded (these extended folder privileges are needed only during installation and upgrade).
- If there are policies applying to the Windows user used for the upgrade, which cuts or otherwise interrupts the Windows session (Citrix, Remote Desktop or otherwise) after a certain amount of idle time, this policy must be disabled for the duration of the upgrade.

The SimCorp Dimension upgrade requires additional system resources, which have to be in place before initialisation of the actual upgrade. When upgrading from SimCorp Dimension version 5.2 or 5.3 to version 5.4 the following is needed:

- Additional disk space for the data owner (for instance SCDAT) tables. Please refer to the note below.

**Note** If the Oracle Scheduler is utilised as recommended for the upgrade (default behaviour), then take note of the two parameters `aofullcopytablespace` and `aofullcopyquota` which can reduce the space usage in the SimCorp Dimension data tablespace. (See 4.2.1.7 “Align Objects Settings”)

Use the Oracle Resumable feature which secures that storage related errors will not result in a crash and/or rollback of the upgrade. Instead the sessions will wait for the specified number of seconds for the problem to be corrected by the DBA. Set RESUMABLE TIMEOUT for the database by using the `Alter System` command. If this is used it is recommended to monitor the view DBA_RESUMABLE and correct any storage error if a storage issue should arise. If monitoring of the database to warn about tablespaces running low on/out of space is configured, the usual channels for communicating and correcting these alerts could likewise be used.

#### Third Party Software

- Microsoft .NET Framework 3.5 and 4.0 must be installed and full trust must be given to the SimCorp Dimension network installation. Please refer to section 4.1.3.1 “Configuring .NET” for more details.

Please refer to chapter 3 “System Environment” for a more detailed description of hardware and third party software recommendations.

Further requirements may be needed on an individually evaluated basis. A SimCorp Dimension best practice upgrade checklist specifying tasks prior to, during and after an upgrade is available from your SimCorp representative.

### 5.3.1.1 Check Database before Upgrading

Before upgrade the SimCorp Dimension task **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Installation Administration** > **Check Database before Upgrading** must be run.

The framework for check before upgrade (CBU) consists of the following tasks:

- **Import Check Before Upgrade Package**
- **Check Database Before Upgrading**
- **Partial Check Database Before Upgrading**
- **Show Result From Check Database Before Upgrading**.

Well in advance of the upgrade start you should request the SimCorp Dimension upgrade media, which is normally delivered on a DVD.

Start-up SimCorp Dimension and run **Import Check Before Upgrade Package**. This will bring up an Explorer window; navigate to the root folder of the upgrade media. The CBU programs will be extracted and placed in the installations Upgrade folder in the SimCorp Dimension netroot installation. If an earlier version of CBU has been imported, these program files will be overwritten. The Windows user performing this task must therefore have appropriate file permissions on the Upgrade folder (please refer to section 7.9 “Folder Permissions”. It is now possible to run **Check Database before Upgrading**.

The result of **Check Database before Upgrading** is a report showing error- and warning-messages, requiring further action.

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| **Note** | The upgrade cannot be initiated if **Check Database before Upgrading** reports errors. |

The report can always be reviewed from the application using the task **Show Result From Check Database Before Upgrading**.

**Check Database before Upgrading** should be run well in advance of the actual upgrade, allowing corrections to be made. When errors have been found, they must be corrected and **Check Database before Upgrading** must be run again, until no more errors are reported. Warnings should be thoroughly examined and corrected. Warnings will not prevent the upgrade from being initiated, but ignoring warnings can lead to problematic scenarios in the new version or in future upgrades. It is possible to re-execute a single CBU function, which causes a given defect in **Partial Check Database before Upgrading**. This can be repeated until it all defects are corrected.

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| **Note** | Please note that when **Partial Check Database before Upgrading** is used it is necessary to finally execute **Check Database before Upgrading** without errors before it is possible to perform the upgrade. |
| **Note** | The CBU programs used for the last run before the upgrade must always correspond with the upgrade media used for the actual upgrade. |

### 5.3.2 System Alteration after Upgrade

After the upgrade of SimCorp Dimension, before going live or starting to configure or use the installation, there are a number of considerations in relation to the operational environment.

- It is recommended to verify business data after the upgrade. Please refer to section 6.1.9 “Verify Business Data” for more information.
- If validation of check constraints has been postponed during upgrade, it is recommended to run the batch job Validate Basic Constraints before going into production.
- Customised reports must be changed where changes to the data model have occurred. An overview of the changes can be found in the SimCorp Dimension Release Document for version 5.4 - ***Changes to Tables and Views***.
- Likewise customised data extracts must be changed where changes to the data model have occurred.
- The relevant version or versions of Crystal Reports Runtime as listed in 3.2.1 “SimCorp Dimension Clients” must be installed on all clients and servers that will be used for executing or installing reports or printing from grids. The runtimes are provided as installation packages in the \AddOns\CrystalSetup folder: they should be

run from there and installed according to the instructions given by their installation programs.

- If the installation contains Communication Server, Internal or External schemas, these must all be verified. This is done from **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Database User Schemas Administration**. Fetch each schema and run **Verify Schema** from the **Functions** drop-down menu. If it ends with no errors to report, a pop-up will say 'Everything looks as it should'. If any errors are reported these must be addressed and fixed before functionality using these schemas can be used.
- For installations containing **Data Extractor**, all DEX objects (definitions, setups, exporter definitions, etc.) are invalidated after an upgrade, and they must be re-validated before they can be used. The validation is done using the **CONNECTIVITY** > **Data Extractor** > **Extraction Validator**. Logon as a normal user, who has been given access to this task, open **Extraction Validator** and press F5 to fetch all Data Extractor objects. For better performance fetch objects per object type. Start the **Validation** via the **Functions** drop-down menu. Any errors found will be displayed in the window at the end of the validation and will be marked in red. These errors should be addressed and fixed. If assistance is required in order to fix any issues, please contact your local SimCorp Support office. In addition, it is also possible to validate all DEX objects via a batch job, where all the errors found can be viewed in the batch log.

Depending on your current settings and use of SimCorp Dimension the following additionally applies:

- If EDA was disabled before the upgrade, it must be enabled again.
- Clients running local installations must be updated using the /update option. First ensure that Setup.ini is up to date by running menu: **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Installation Administration** > **Update Local Installer**. Please refer to the ***Local Installation White Paper*** for more information
- If the installation contains **ORDER MANAGER**, configuration must be completed. Please refer to section 3.3.7 “Order Manager” and the ***Front Office Implementation Guide*** available in the online help and from Client Support site.
- If the installation contains **REPORT BOOK MANAGER** it is required to upgrade to **REPORT BOOK MANAGER** accordingly. Please refer to section 3.3 “Module Specific Requirements”.
- Consider downloading and installing Microsoft Debugging Tools for Windows. It might be needed in case of troubleshooting, as mentioned in section 3.2.1 “SimCorp Dimension Clients”.

Further requirements may be needed on an individually evaluated basis. Your SimCorp representative will inform you of this.

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| **Note** | Please note the “Known Issue” 8.9.22 “Executing Statistics Gathering following Upgrade may cause Performance Instability” |

### 5.3.3 Test and Production Upgrade

An upgrade of the production system is normally preceded by one or more upgrades of a test environment (typically the NEW installation). The time between the test and production upgrade can then be used for a business test of the new version.

Before the upgrade of the NEW installation is started, it is recommended that the Production installation is copied to NEW (please refer to section 6.1.1 “Copying Data”) to allow the upgrade to be performed on as realistic production data as possible.

After the copy, all checks and prerequisites for the upgrade, as specified in section 5.3.1 “Prerequisites for Upgrading to Version 5.4”, must then be performed in the NEW installation before this is ready for upgrade.

If tests result in patches to be applied to the NEW installation, it is necessary to make patch files for the Production installation at the same time. This to make sure that the production installation can be patched to the exact same level after it is upgraded. Please ask SimCorp to create both patch files at the same time.

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| **Note** | If more than one test of the upgrade is performed and a new upgrade media is provided; please ensure that all instances of the old upgrade media are removed. This includes locations on network or disk where the media contents might have been copied to. And in addition when using a new upgrade media the Check before Upgrade programs provided on the media must be imported and the checks re-run. |

Comments in section 5.3.2 “System Alteration after Upgrade” should also be applied to the NEW installation before the business test can commence.

Please also be aware that changes to the configuration file (Cnf.ini) can occur as part of the upgrade process. If an upgraded installation is copied to and overwriting a test installation of an earlier version, then the Cnf.ini file in the destination installation must be updated to reflect any changes. Please refer to section 4.2.1 “Configuration File” for a more in-depth description of the Cnf.ini file, and section 6.1.1 “Copying Data” on how to copy installations.

## 5.4 Applying Patches

*This section provides a brief overview of applying patches, plus adds some information on issues to pay special attention to. For a more detailed description, please refer to the SimCorp Dimension **Patch Procedure** User Manual.*

SimCorp releases patches following a two-track patch procedure with an implementation track and a production track from release date. SimCorp releases one additional service pack (SP2) for each version after the release and creates an additional production track on the basis of that. The additional service pack (SP2) is released 6 months after release of the version. The planned date for release of SP2 for version 5.4 is therefore on 1st February 2014.

All released patches delivered by SimCorp are labelled with a build id. The installation will be at a certain build level which may be seen as a collection of all builds up to and including the build id specified by the build level. If unreleased patches are present, these will be registered as “extra patches”. The build level and extra patches can be seen in **Help**, **About SimCorp Dimension**.

At the end of the patching process the system will attempt to transfer the information about the applied patch level to SimCorp, using the Operational Data Assistant solution or email, depending on configuration. The patch level information can also be transferred on demand from a SimCorp Dimension session by running the task **Transfer Patch Information to SimCorp**. By supplying this information to SimCorp the size of future created patch files will be limited.

Please in addition refer to section 2.4.2 “Operational Data Assistant Solution”.

### 5.4.1 Prerequisites for Applying Patches

Patch files are delivered from SimCorp as a self extracting exe-file. In order to be able to receive these files from SimCorp, changes may be required to firewalls and/or virus scanning software.

The patch file must be placed in a special folder with proper permissions set for the user performing the Apply Patches task.

Before placing the file in the Patches folder please ensure that old contents of the folder are removed.

More information on this folder and permissions can be found in sections 7.8.12 “The Patches Folder” and 7.9.2 “Permissions for Certain Users”.

### 5.4.2 Apply Patches Process

The patch is applied from **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Installation Administration** > **Apply Patches**. The patch apply mechanism performs the appropriate action.

Before patching, the following must be ensured:

- Applying patches requires exclusive access to the installation. No users including servers etc. must be logged on to the installation, no files belonging to the installation should be opened and no database sessions should be using the SimCorp Dimension schemas.
- Please ensure that no customised reports, filters or XpressInstrument templates and definition files have been saved to the StdRep, StdFilt or StdIML folders, as the patch routine will delete all reports, filters and XpressInstrument files not maintained by SimCorp in these folders.
- The patch must be applied from a SimCorp Dimension session opened from the central network installation. Due to e.g. Windows handling of paths, the session must not be opened directly on the fileserver housing the SimCorp Dimension installation files. Other users must not be logged in while the patching takes place.
- The user applying the patch must have appropriate administrative privileges.

**Note** There is a known issue when using **Apply Patches** in a Windows 7 or Windows Server 2008 environment. Please refer to section 8.8.18 “Sharing Violation during Patch Apply” for more information.

**Note** It is possible to prevent users to logon to SimCorp Dimension until the patch apply has ended by using the SCD.exe parameter: `-BLOCKLOGON=ON` when the installation is started.

### 5.4.3 After Applying Patches

After patch apply, please verify the success on screen and in the generated log file (location …Maintenance\patch##.log, where ## indicates the current version). If errors were encountered, please see the messages in the generated patcherr.log file.

It is strongly recommended to keep the patch log and not delete this file. The patch log and its historic contents should always be available in the folder.

# 6 System Operations

This chapter describes how to perform a number of typical operations tasks on SimCorp Dimension.

Many operations tasks have been described more thoroughly in dedicated manuals – in these cases they are referred to.

The tasks are roughly grouped by ITIL process areas and similar terms, anticipated to be familiar to most IT departments.

## 6.1 SimCorp Dimension installation Management

This section describes tasks related to managing SimCorp Dimension installations as well as the installation data in the database and in files.

### 6.1.1 Copying Data

A typical SimCorp Dimension configuration consists of a production system and one or more test environments. The test environments can be used for different purposes, such as a system for the test of patches, day to day tests and training or system to be used for testing new versions of SimCorp Dimension before upgrading Production.

It will be necessary from time to time to copy the production environment to the test environments so that tests can be performed on actual data.

From a high level process perspective copying a SimCorp Dimension installation consists of taking a copy of the database and a copy of the applications program files, and is a task which can be scripted and automated. Please refer to the release document: ***How to copy the SimCorp Dimension database***.

If a copy is made to a new location or the Cnf.ini (placed in the installations Data folder) is overwritten, the Cnf.ini file of the destination must be changed to reflect e.g. the destination database, MUCS server and port and the name of the installation and URL protocol. Likewise paths in Cnf.ini pointing to the source for copy must be changed to point to the destination folders. For more information on the Cnf.ini file please refer to section 4.2.1 “Configuration File”.

After copying an installation, it is necessary to synchronise the database version information and synchronise the users with the SimCorp Dimension installation. This is done from a command line with the -job=SYNCDBVERS and -job=SYNCDBUSERS options for the installation which has been overwritten. Please be aware when running these options the Oracle password for the installation data owner (SCDAT) must also be provided:

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| **Example** | `...\sctest\Bin\scd.exe -np -job=SYNCDBVERS -datpwd=<SCDATPW> -wait`<br>`...\sctest\Bin\scd.exe -np -job=SYNCDBUSERS -datpwd=<SCDATPW> -wait` |

If the installation requires a default password as stated in **System Security Options** it is necessary to add a default password as part of the command. Example:
`...\sctest\Bin\scd.exe -np -job=SYNCDBUSERS -datpwd=<SCDATPW> -wait -!defaultpwd=<Xyz1>`

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| **Note** | A default password will only apply to “NORMAL Users”. BATCH, SERVER users etc. will still be granted a particular password. |

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| **Note** | When adding the parameter default password the value needs to meet password complexity configured in the Oracle database, whereas registration in **System Security Options** from inside SimCorp Dimension is ignored. |

If the database was copied using a full copy method (for instance a database clone or a restore from backup) the SYNCDBUSERS job is not required, and can be skipped. Also, it must be ensured that the Oracle directory SCDXMLDIR points to the location within the Oracle home that holds the Oracle Inventory and that READ privileges are added to the SimCorp Dimension data and system owner. The directory is used to check for required Oracle patches installed when starting SimCorp Dimension.

It is generally recommended to have no sessions in the production system while it is being copied to the test system. If e.g. the test database is created by restoring an online backup of the production database, the SimCorp Dimension servers in the test system can appear to be running although they are not. In this case use the scd.exe option

```
-!forcestop=1
```

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| **Example** | `...\sctest\bin\scd.exe -server=* -!forcestop=1` will change the status of all SimCorp Dimension servers in the installation to 'Ended'.<br>`...\sctest\bin\scd.exe -server=CALC1 -!forcestop=1` will change the status of the server with id CALC1 to 'Ended'. |

The status of a SimCorp Dimension server can be seen from the **Server Monitor** task in SimCorp Dimension.

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| **Note** | Changes to the configuration file *(Cnf.ini)* can occur as part of an upgrade process. If an upgraded installation is copied to and overwriting a test installation of an earlier version, then the Cnf.ini file in the destination installation must be updated to reflect any changes. Please refer to section 4.2.1 “Configuration File” for a more in-depth description of the Cnf.ini file. |
| **Note** | It is necessary to make a new workspace after changing database connection parameters in cnf.ini, as the service hosts cache connection parameters in a special file. Failure to do so will cause service hosts to connect to the source environment. |

#### 6.1.1.1 Reference File Names

Reference file names can be set up to reference the Prod installation. The reference file names are stored in the database, so after copying, the references in Test are now the same as in Prod. These Reference File Names must be corrected manually to reflect the directories used by Test.

This function can be executed from the SimCorp Dimension menu **DATA** > **REFERENCE DATA** > **Miscellaneous Codes** > **Reference Files**.

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| **Note** | This step can be avoided by using a SimCorp Dimension Directory component type controlled by the cnf.ini file. |
| **Note** | There may be other windows in SimCorp Dimension with references to absolute paths as well, for instance in the menu **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options**. Make sure that your new Test instance does not reference any files in the Production installation. |

### 6.1.1.2 Order Manager

Please be aware that installations configured with the SimCorp Dimension **ORDER MANAGER** (OM) module contain configuration information referring to the physical server and login details for servers in the OM environment. These values are stored in the database and extra care must therefore be taken in order to manually change these configuration parameters in the test system, after the production system has been copied.

| **Note** | If these parameters are not changed in the test system you could mistakenly be sending orders to brokers in the production system. |
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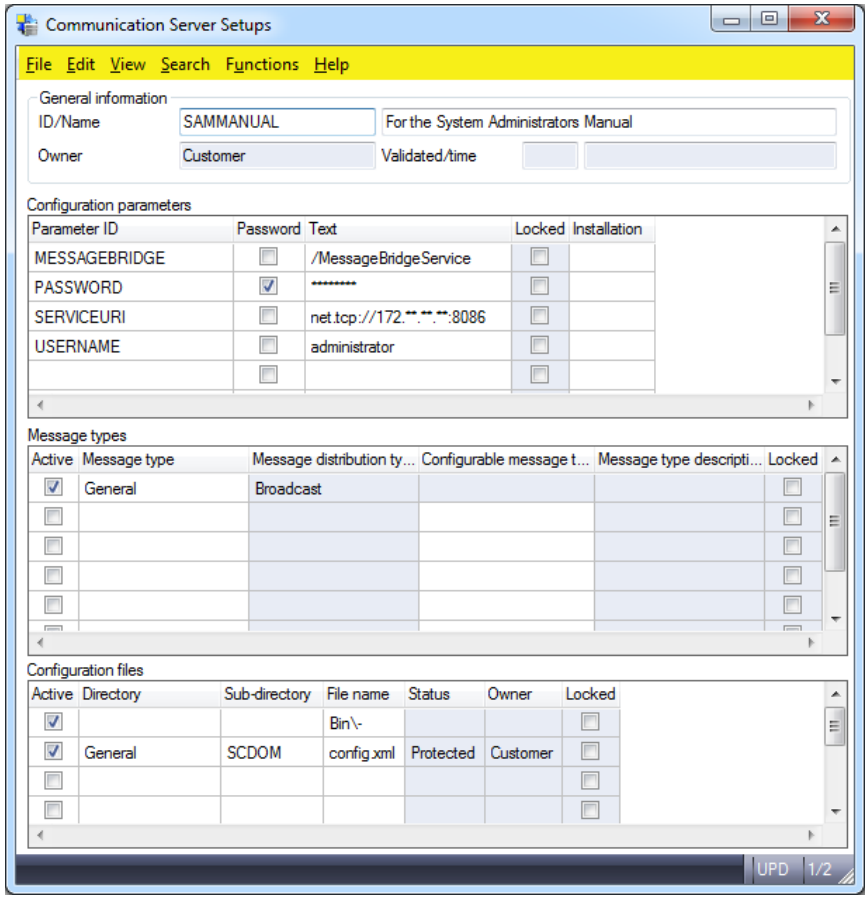
The configuration parameters in question are spread across a couple of windows in SimCorp Dimension, namely **MAINTENANCE** > **SERVER ADMINISTRATION** > **Communication Server Setups** and **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **Order Manager Configuration**

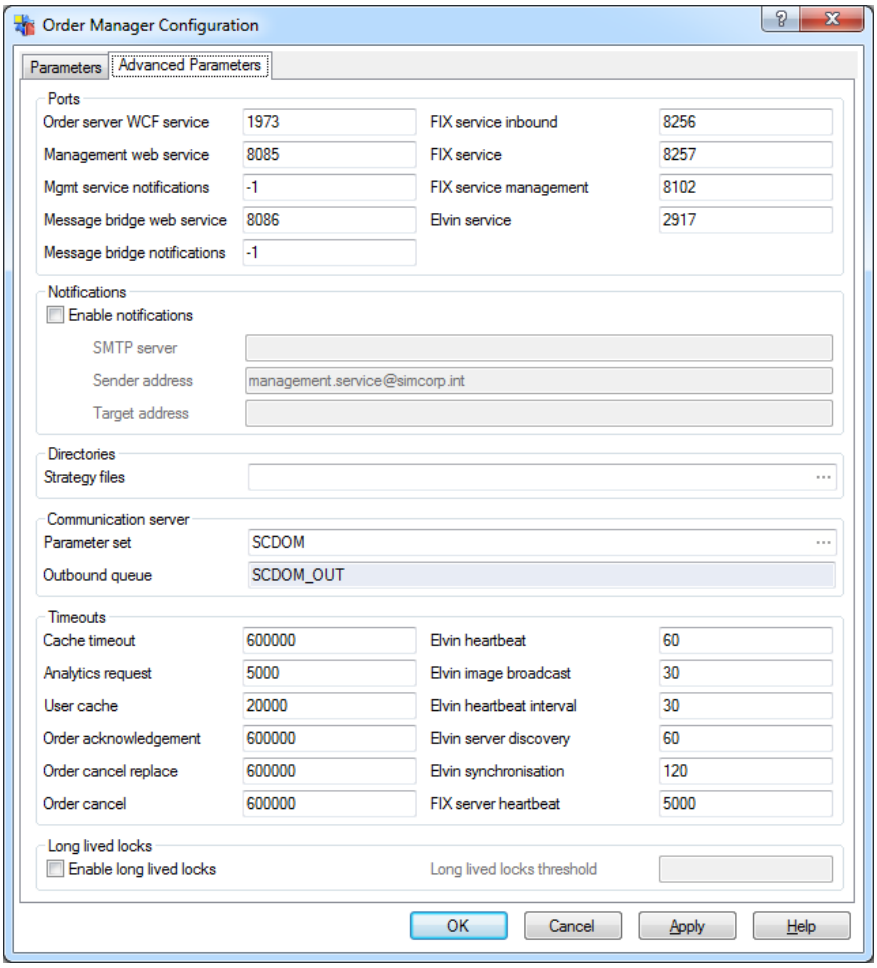
The **Communication Server Setups** window contains information about the location of the Order Manager Message Bridge service, which is entered against the `SERVICEURI` Parameter (see below). This value MUST be changed to match the IP address/hostname & port of the Message Bridge service in the test environment. Failure to do this will mean orders from the test environment may be forwarded to the production environment.




The **Order Manager Configuration** window contains information about the locations of all the Order Manager services and their related ports plus SQL Server connectivity information. Most of these parameters are now read from the cnf.ini file so should remain unchanged providing the cnf.ini is not overwritten during the refresh process.

On the **Advanced Parameters** tab the following information should be checked and changed if necessary:

- **Ports** – All server/service ports
- **Directories** > **Strategy Files** – Whilst an incorrect value against this parameter will not cause major problems it is as well to change this to the correct location on the test environment
- **Communication Server** > **Parameter set**




If the copy of SimCorp Dimension is made for other purpose than Order Manager it is possible to delete Order Manager Server Reference instead. This can be done running a batch job right after copying production to test. The name of the "Window/function" in **Batch Jobs** is: **Delete Order Manager Server Reference**.

### 6.1.1.3 Report Book Manager

After copying a SimCorp Dimension installation containing **REPORT BOOK MANAGER** it is important to review and possibly change the reference directory for report files produced by the Client Reporting server. The location is stored in the **Directory for temporary files** field in **Server Options** on the **Client Reporting** tab.

Likewise the **Directory for files to Equipos**, **Directory for files from Equipos** and **URL for Equipos WebService Call** fields in **Interface Options** on the **Equipos** tab should be reviewed and changed if required. And in addition any paths for Equipos listed in **Communication Server Setups** for the Client Reporting communication server.

For more information, please refer to the manual ***Report Book Manager 2.7 How to Copy PROD to TEST***.

#### 6.1.1.4 Using the External Data Access Module (EDA)

The SimCorp Dimension **EXTERNAL DATA ACCESS** (EDA) module takes advantage of Oracle Fine Grained Access Control. When Fine Grained Access Control is used, data access is controlled by policies, specifying which data users are allowed to view. This can have an effect when exporting SimCorp Dimension data and will show up as missing data in the export file.

Therefore, if you use the EDA module in SimCorp Dimension and Oracle export/import utilities to copy data from Production to Test environments, you must ensure that the Oracle user used to perform the actual export of data has been granted the `EXEMPT ACCESS POLICY` system privilege. In addition the Oracle user performing the export must also be registered in SimCorp Dimension. This registration is done in the task **MAINTENANCE** > **SYSTEM ACCESS** > **External Users** > **Privileged Users**. To ensure, for example, that the SYSTEM user can export all data: (in for example SQL*Plus) `GRANT EXEMPT ACCESS POLICY TO SYSTEM` and enter `SYSTEM` in **Privileged Users** in SimCorp Dimension.

Alternatively use the Oracle user SYS when exporting SimCorp Dimension data from an installation where EDA is enabled or disable EDA in SimCorp Dimension for the duration of the export. In the latter case please be aware this is only an option if no EDA users need access to data while it is being exported.

Please refer to section 4.1.4.9 “External Data Access” for more information on the EDA module.

### 6.1.2 Deleting a Test Environment

If a test installation is not needed any longer, it can be deleted by removing the database part of the installation and deleting the installations application folder inclusive of all subfolders for the installation:

1. If the installation is the only installation using the database the whole database can be removed using Oracle tools. If the installation shares a database with other installations, the installation data and system schema owners and their related tablespaces must be dropped together with any users not needed in the other installations. Likewise, the user role and the select role (and users granted these roles, not needed any longer) should be deleted. The actual names of the schemas, tablespaces and roles can be found in the configuration file (please refer to section 4.2.1.1 “Database Connectivity Parameters”).
2. If there are SimCorp Dimension clients using the installation as “Local Installation”, the installation part on their workstation needs to be removed. This can either be done by using Windows **Add or Remove Programs** or <netroot>\bin\setup.exe /remove (please refer to the ***Local Installation White Paper*** for more information of uninstalling a Local Installation).
3. Various shortcuts to the installation and scripts for starting servers/batch jobs should be removed where relevant. If MUCS and/or application servers for the installation have been installed as services, these services should be deleted (please refer to section 6.6.3.2 “Uninstall Windows Service”).
4. The installations application folder structure on the file server can be deleted using the usual way of deleting Windows files. Please be aware that certain folders may not reside under the installation netroot folder, but can be redirected to another location. If this is the case, the configuration file will contain the actual location of

these folders (please refer to section 4.2.1.2 “Redirection of Common Write Access Folders”).

If the installation being deleted is registered at SimCorp for receiving patches, please notify your local SimCorp Dimension support office that the installation has been deleted.

### 6.1.3 Partitioning

SimCorp Dimension supports table partitioning for a number of tables. In 5.4 this is available for some of the tables in the following table groups: **AUDIT TRAIL & FOUR EYES PRINCIPLE**, **CALC FIGURES, MARKET DATA, PORTFOLIO CALCULATIONS** and **SYSTEM**. The table group names corresponds to the naming used in e.g. **HELP** > **Database Overview.**

Partitioning requires Oracle 11*g* Enterprise Edition with the Partitioning option and a SimCorp Dimension installation file with the Partitioning module is required. Furthermore it is necessary to be able to maintain the partitioning that the Oracle view SCD_USER_TAB_COLS_ADDED is present.

For an overview of how tables are partitioned, please refer to section 7.6 “Partitions Overview”.

#### 6.1.3.1 Considerations

As enabling or disabling partitioning of table groups requires recreation of the affected tables, a maintenance window is needed. The size of the window will depend on the amount of data in the involved tables and the available hardware.

For more detailed information on the Oracle Partitioning Concepts refer to documentation provided from Oracle.

#### 6.1.3.2 Enable and disable partitioning

When all requirements are met, the initial partitioning of tables is available from **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Enable Partitioning**. If partitioning is no longer needed it can be disabled in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Disable Partitioning.** You must be logged on as System Administrator and no other users may be logged on.

| | |
|---|---|
| **Note** | When using table storage customisation on tables or indexes in combination with partitioning using a composite partitioning method, the requested attributes (like tablespace) might not be listed in the relevant columns on DBA_TAB_PARTITIONS and DBA_INDPARTITIONS (and corresponding views). Rather you should use DBA_TAB_SUBPARTITIONS and DBA_IND_SUBPARTITIONS to find the partition attributes. This is caused by the way that Oracle handle composite partitioning. The storage attributes on the subpartitions are matching the desired settings. |

### 6.1.4 Table Storage Customisation

SimCorp Dimension system and application data is stored in tablespaces as stated in the configuration file cnf.ini. Beside those stated tablespaces it is possible to distribute tables and indexes to additional tablespaces using **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Table Storage Customisation**. If tables are moved without this registration the application will not work properly, and SimCorp Dimension will at next upgrade, patch apply, Ins-file update or Verify Database Structure run move the table back to its default location.

When a change in the **Table Storage Customisation** is saved a prompt for data owner password will occur. When the password is given the customisations will be applied immediately by Align Objects.

| | |
|---|---|
| **Note** | To be able to distribute tables and indexes the data tables owner needs quota on the tablespace. |
| **Note** | All other users should be logged out when the changes are applied and **Verify Database Structure** is executed. |

### 6.1.5 Cleanup Tasks

SimCorp Dimension contains various tasks for cleaning up data that is no longer required in the database. Some of these tasks can be set up to run as batch jobs, and the tasks should be considered as part of operation management. The tasks have been described further in the SimCorp Dimension ***Data Cleanup*** User Manual as well as in the online help.

| | |
|---|---|
| **Note** | Setting up cleanup tasks do require knowledge about the business and should be done in agreement with auditor's specifications. |

You can view the details from last executions of cleanup jobs in **Cleanup Log – View Data**

### 6.1.6 Verify Database Privileges

When using standard SimCorp Dimension functionality when installing SimCorp Dimension, the correct Oracle Privileges will be added to owners, roles and objects. From time to time database administrators decide to revoke/add some privileges. To make sure that dataowners, roles and objects has the correct Oracle privileges granted it is possible to check and even add missing privileges/revoke redundant privileges using a `–job` option called `verdbprivs`.

```
...\Bin\scd.exe -job=verdbprivs -datpwd=<SCDATPW>
```

A popup appears where it is possible to choose which areas to verify. Afterwards choosing what to check a prompt appears asking for an Oracle DBA name and password. This DBA user needs at least the privileges as stated for an upgrade DBA user – please look in 7.12 "Installation and Upgrade Privileges" for further information

It is possible to use this functionality to add missing privileges or revoke redundant privileges.

| | |
|---|---|
| **Note** | Privileges need to be revoked by the same user that has granted the privileges. Alternatively the Oracle user SYS or SYSTEM can be used. |

### 6.1.7 Verify Database Settings

SimCorp Dimension requires some database settings. **Check Before Upgrade** checks if these settings are correct. It is possible to perform the check using **Verify Database Settings**. The following can be checked:

- XML DB
- SCD_USER_CONSTRAINTS
- UNICODE
- SCHEDULER

SimCorp Dimension uses the Oracle XDB packages, functions and procedures and it is a prerequisite that these are installed. XMLDB check if these are installed. Please refer to the ***SimCorp Dimension Preferred Oracle Configuration User manual*** for further information on installing XMLDB.

SCD_USER_CONSTRAINTS checks if the view is present. Please refer to 4.1.4.12 "Viewing User Constraints – Optimised View" for further information.

The UNICODE check finds out if the installation is ready to use Unicode or if there are mismatch between the Database and the SimCorp Dimension installation. Please refer to: 3.1.7 “Unicode Support” for further information

SCHEDULER checks if it is possible to use the Oracle Scheduler. For further information please see: 4.2.1.7 “Align Objects Settings”.

It is possible to execute **Verify Database Settings** as a batch job.

### 6.1.8 Verify Database Contents

It is recommended to run **Verify Database Contents** on a regular basis, for instance from a batch job.

Also, before an upgrade the SimCorp Dimension task **Verify Database Contents** must have been run successfully reporting “No errors found”. The task should be run with the following options checked:

- **Check references**
- **Check data contents**
- **Check texts, dates and Booleans**
- **Check all numbers**
- **Fix errors**

This task should, as with **Check Database before Upgrading** be executed well in advance of the upgrade to allow time to resolve any issues reported. The task must be run again shortly before the actual upgrade date, reporting

*No errors found*

Otherwise it will not be possible to continue with the upgrade.

If **Verify Database Contents** is run with option **Fix errors** no users must be connected to the installation. The alternative is to run **Verify Database Contents** without using the **Fix errors** option, and only if errors are reported, run the task again, this time including **Fix errors**.

| | |
|---|---|
| **Note** | Before running **Verify Database Contents** as part of an upgrade, please ensure that the batch job **Validate Basic Constraints** has been run and completed successfully following the previous version upgrade. If **Validate Basic Constraints** has not completed, errors will be reported by the **Check Before Upgrade** routine, forcing its completion anyway. Completing **Validate Basic Constraints** will give the added benefit of increased speed when running **Verify Database Contents**. |

### 6.1.9 Verify Business Data

**Verify Business Data** verifies the integrity of data which serves the basis of SimCorp Dimension's financial accounting calculations.

The task **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Installation Administration** > **Verify Business Data** opens a window from where individual verification tasks can be selected and started. Select check boxes for the desired tasks and click OK to run. A description for check box is shown below:

| Check box | Meaning |
|---|---|
| **Check transaction holding keys** | Verifies that all transactions contain correct holding keys. The job may run for several hours in large installations. |
| **Check for holdings with undefined currencies** | Verifies that all transactions and holdings contain the correct currency codes. |
| **Check for unrounded amounts (this may take a long time)** | Verifies that all amounts saved in the database have been rounded properly according to the number of decimal digits specified for a particular currency. |
| **Check the holding key table for duplicates** | In rare cases there might be duplicate holding keys. Duplicate holding keys might lead to misleading reports and should be eliminated. |
| **Check the consistency of sub/join table flags in table "Transactions"** | Verifies that sub/table flags are set correctly for all records in the main TRANSACTIONS table. These flags are used to indicate whether data exists in corresponding sub/join tables. |
| **Check balance nominal value in table "Holdings"** | Allows for checking balance nominal value in selected portfolios of selected accounting frameworks. |

To make sure data is consistent prior to a version upgrade **Verify Business Data** should be executed with the following checkboxes marked. **Check transaction holding keys**, **Check the holding key table for duplicates** and **Check the consistency of sub/join flags in table 'Transactions'**.

The two tasks **Check for holdings with undefined currencies** and **Check for unrounded amounts** could also be marked are not as important as the above mentioned. The last task in the list "Check balance nominal value in table "Holdings"" should only be run on request from SimCorp.

| Note | No users may be logged on to the system while the verification tasks are performed as their activities may affect the results. If **Verify Business Data** results in an error list please contact SimCorp for further investigation. |
|---|---|

Any found errors can take time to clean up so **Verify Business Data** should be run in due time before an upgrade.

### 6.1.10 Log File Management

This section describes the principles of log files written by SimCorp Dimension.

### 6.1.10.1 Log Reference Files from the Application

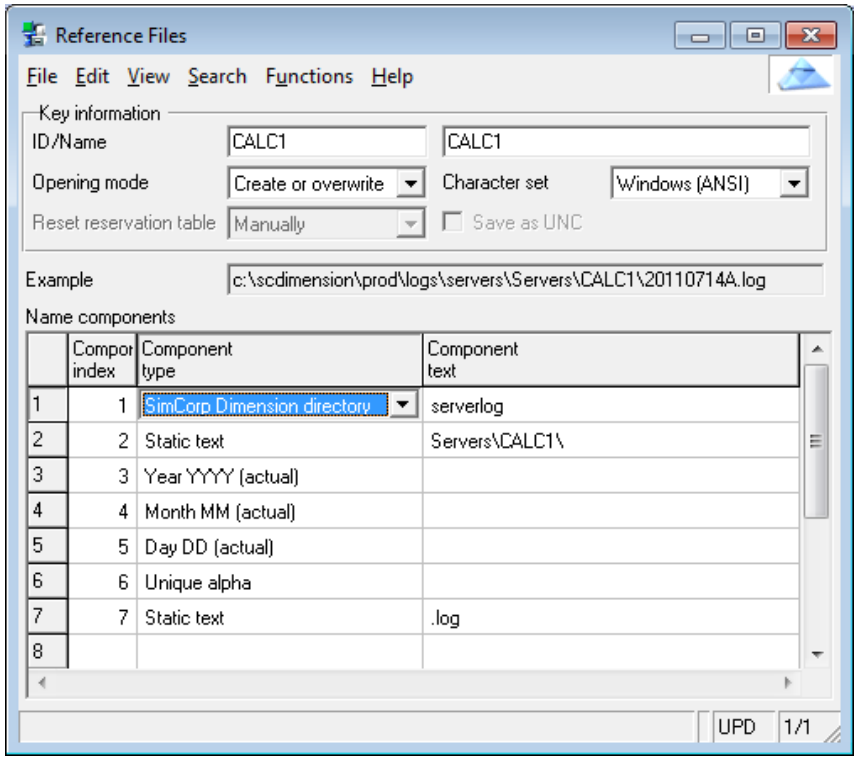
Different processes in SimCorp Dimension use the reference file utility to store log files. The files are defined in **DATA** > **REFERENCE DATA** > **Miscellaneous Codes > Reference Files**.

The use of Reference File Names is explained in the SimCorp Dimension ***Setting up Reference Data*** User Manual. Pay special attention to the **Component type** 'SimCorp Dimension directory' that make it possible to define log paths relative to the current SimCorp Dimension installation (test, prod etc). Definition of the actual path is done in the Directories tab Additional definitions field of the **System Environment Configuration** task. Please see section 4.2 “Standard Configuration” for more information on changing system environment settings.

In the example below it is assumed the following entry has been written in the **Additional definitions** field of **System Environment Configuration** in the production installation:

```
serverlog=C:\SCDimension\PROD\Logs\Servers
```

In **Reference Files** it is possible to reference this folder, by choosing “SimCorp Dimension directory” in **Component type**, and writing “serverlog” in the **Component text** field:




| Note | The Windows user starting the SimCorp Dimension process must have the appropriate permission to write to the folders mentioned. |
|---|---|

It is always possible when using **Component type** “SimCorp Dimension directory” to reference any of the standard installed SimCorp Dimension folders, such as Log, Tmp etc.

It is good practice to keep the number of objects in the network installations Log folder to a minimum. Therefore, if the Log folder is used for reference files it is recommended to create sub folders for these and then define these in the **Additional definitions** field of

**System Environment Configuration,** or alternatively reference the standard folder (for instance Log) with **Component type** "SimCorp Dimension directory" and a "Static text" entry for the sub folder, for example `Servers`, assuming a folder Servers has been created as ..\`Log\Servers`.

### 6.1.10.2 SimCorp Dimension System Log Files

System log files are written from the system and by different events or errors. Unless otherwise stated, they are stored in the SimCorp Dimension Log folder which can be defined from within **System Environment Configuration** (see section 4.2.1.2 "Redirection of Common Write Access Folders"). The following are some examples:

| File | Description |
|---|---|
| SCD.LOG<br>or<br>SCD__<machineID>.LOG | System event, user log on and status.<br>If the "Split log file" option is enabled the information will be per machine, which is recommended when running in a MUCS failover environment |
| MUCS.LOG | Log files written from the Mucs.exe process |
| patch<version#>.log | patch*.log Shows patch apply status, appended at every patch apply. The file is placed in the maintenance folder |
| patcherr.log | Shows the latest errors if any were encountered during the last patch apply. This file is not updated if the patch does not encounter errors. The file is placed in the maintenance folder |
| realtime.log | Used to store errors from the real time environment. The process will wrap the error from the external provider |
| err#.dcf | These types of files are used to store error reports from fatal error incidents and serves as a kind of backup if the logging of the error on table INCIDENTS failed. The number refers to the internal user number. These files may be deleted when the incident has been processed through the usual channels. The files are saved in the SimCorp Dimension folder Dump, usually under the Tmp folder |
| Initerr<datetime>.txt | Shows the errors originating from a failed initialisation of the APL session |

**Note** The patch<version#>.log can be useful for SimCorp in troubleshooting scenarios. Therefore this log and its contents should be kept in the folder and not deleted.

**Note** The system does not by default truncate the SCD.LOG and MUCS.LOG files, but may be configured to do so. In order to ensure these files do not consume vast amounts of disk space, they should be truncated at regular intervals, as described below.

The SCD.LOG and MUCS.LOG entries are written in a format to ease readability. The format of the log can be changed so that each log entry is written on one line, making the log more compact, and also easier to be used by for example third party monitoring applications. To have the log entries written to SCD.LOG and MUCS.LOG as one line add `LogSingleLine=1` to the **[config]** section of the Cnf.ini file. For more information on the Cnf.ini file, please refer to sections 4.2.1 “Configuration File” and 7.4 “Configuration File Parameter Overview”.

There are two alternatives for the system log file ruled by the configuration parameter `ScdLogSplit` in the **[config]** section of the cnf.ini file. If `ScdLogSplit=0`, the default, SimCorp Dimension will use one single SCD.LOG file. If `ScdLogSplit=1`, the system messages will be logged to multiple SCD__<machineID>.LOG files (Split log file), where <machineID> is replaced with the originating machine for the logging. The “Split log file” option is recommended if the installation contains many machines or the installation runs in a failover MUCS server environment. It should be noted that if `ScdLogSplit` is enabled then the setting of `LogSingleLine` is ignored.

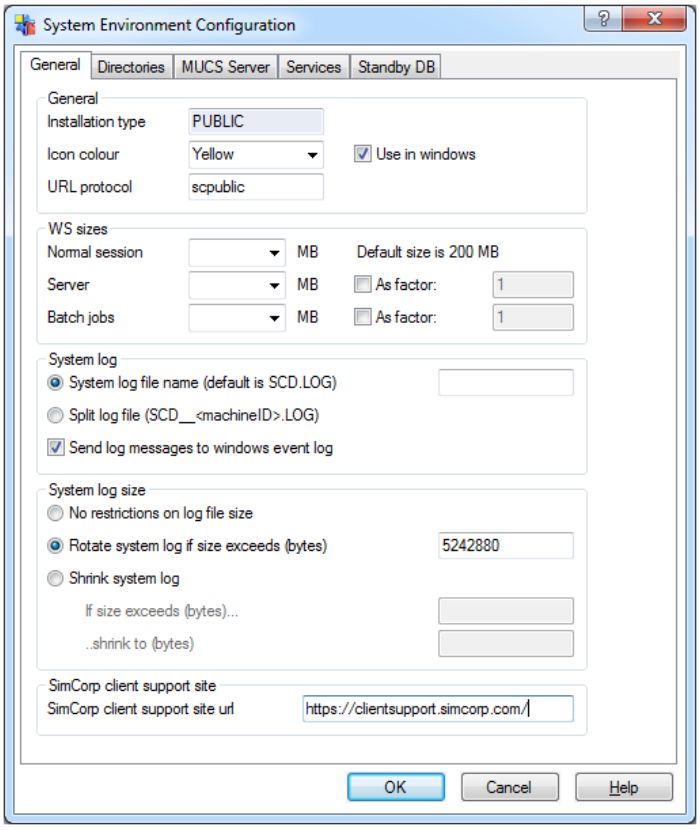
The `–SCDLOGMERGEDIR` option for scd.exe is used to merge all the produced SCD__<machineID>.LOG files into one single file. The name of the produced file will be MergedScd_<date>.log.

SimCorp Dimension can be configured to regularly copy and then truncate the SCD.LOG and/or MUCS.LOG files. When this is configured, SimCorp Dimension makes a copy of the SCD.LOG/MUCS.LOG file before truncating it. Configuration is done through **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **System Environment Configuration**.

For example, if the field **Rotate system log if size exceeds (bytes)** is set to 5242880, when the system log (SCD.LOG) reaches 5 MB it will be renamed with a timestamp inserted in the name (such as “SCD20131231093546505.log”) and logging will continue to a new empty SCD.LOG.

Alternatively, it can be specified that the log file should be shrunk to a given size when it reaches a certain size.

**Note** When the files are being shrunk, information in the files will be lost.




A notice can be sent to the Windows Event Log by selecting **Send log message to Windows Event Log**. The size of the Windows Event Log can be controlled using Windows Computer Management. Please look up error descriptions in:

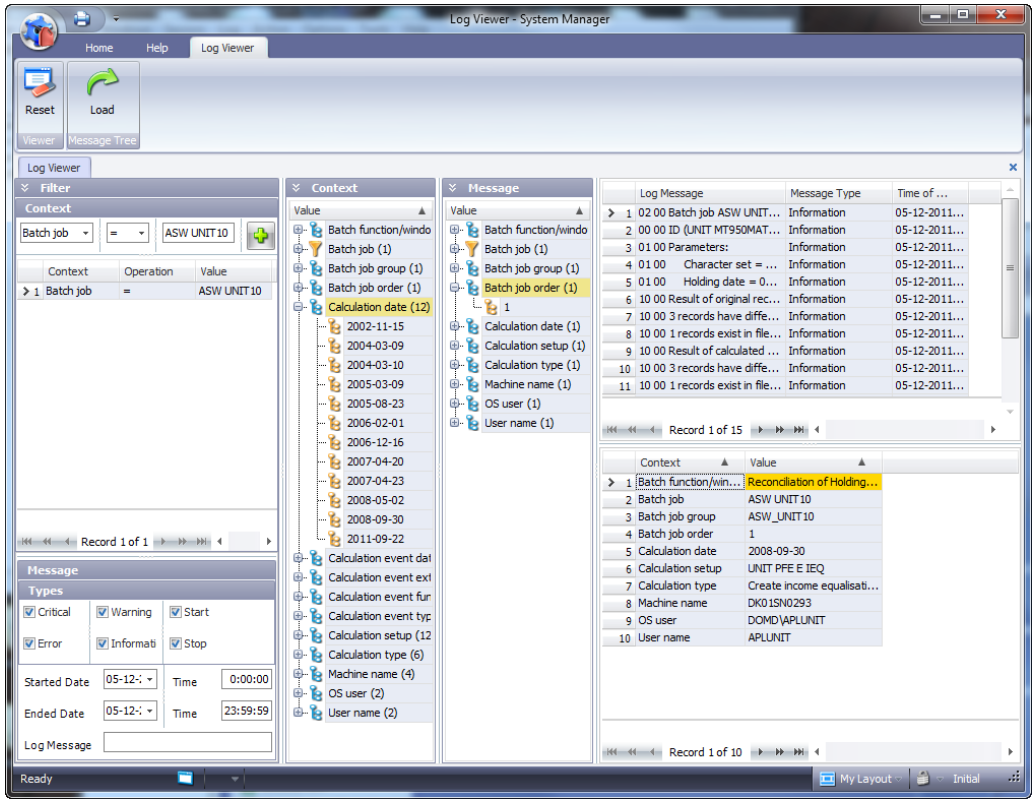
**Note** The event logs generated from **OPERATIONAL DATA ASSISTANT** are not controlled by this check. Please refer to: 7.8.14 “The RConnect Folder”

Please refer to section 4.2 “Standard Configuration” for more information on the **System Environment Configuration** task.

### 6.1.10.3 Unified Logging

SimCorp Dimension log messages can be monitored from a central location through the **Log Viewer**.

The **Log Viewer** is located in **Maintenance** > **System Maintenance** > **System Manager**. Choose the **Show** button and select **Log Viewer** from the dropdown menu which appears. This will show the **Log Viewer**:




Use the **Log Viewer** to monitor log messages sorted according to the following contexts:

- Batch function/window
- Batch job
- Batch job group
- Batch job order
- Calculation event date
- Calculation event extended
- Calculation event fund
- Calculation event type
- Calculation setup
- Calculation type
- Machine name
- OS user
- Server name
- Server type
- User name

**Note** It is still possible to view the logs from the **Server History** and **Batch History** windows, **Batch Job Groups**, **Server Administration** and the **Server Monitor.**

**Note** If connection to the database is lost the error will be saved in Microsoft eventlog.

### 6.1.11 Moving the Folder Structure

If the SimCorp Dimension folder structure is to be moved to a new location, all SimCorp Dimension sessions should be terminated before moving the folder structure. This includes any SimCorp Dimension application servers/services and the MUCS server/service. Any clients running SimCorp Dimension as local installation must have the client installation removed. For more details please refer to section 5.2.2 “Local Installation”.

Any SimCorp Dimension Windows services should be deleted before attempting to move the folder structure. Please refer to section 6.6.3.2 “Uninstall Windows Service” for details of deleting the Windows service for a SimCorp Dimension server process.

Any scripts used to start SimCorp Dimension batch jobs and/or servers must be modified to point to the new location of the folder structure. Likewise, scripts for copying SimCorp Dimension installations, for example from Production to Test, must be modified to reflect the new location.

In the new location the configuration file (`…\data\Cnf.ini`) should be edited for paths pointing to the old folder structure so that these point to the new structure.

After the installation files are moved, it is necessary to synchronise database version information with the SimCorp Dimension installation. This is done from a command line by using the scd.exe option “-job=SYNCDBVERS”.

#### 6.1.11.1 Protection and Accessibility

Permission to the new folder structure should be restored as it was on the old folder structure.

When the new folder structure is ready, the MUCS server should be started from the new Bin folder location. If the MUCS server is run as a Windows service, the service must be installed from the new location first. Please refer to section 6.6.3.1 “Windows Service Installation” for details of how to create the Windows service for MUCS.

Start SimCorp Dimension from the new location folder and log into SimCorp Dimension and run the **Synchronise Database Version Info** task. Confirm that the path for the application has changed.

If any paths in **Reference Files** (or elsewhere in the application where paths can be specified on input fields, such as **Interface Options**, **Miscellaneous Options**, **MQ Clients**, **Real-Time Market Data Options, Transaction Options**) point to the old location, these must be changed to point to the new location. Please refer to section 6.1.10.1 “Log Reference Files from the Application” for more details on the **Reference Files** task.

If any SimCorp Dimension application servers should be run as Windows services, the services must be installed from the new location first. Please refer to section 6.6.3.1 “Windows Service Installation” for details of how to create the Windows services for SimCorp Dimension server processes.

All SimCorp Dimension application server processes must be started from the new location.

Finally, if users are running SimCorp Dimension from a local installation, setup.exe must be run on each client. For more details please refer to section 5.2.2 “Local Installation”.

### 6.1.12 File Cleanup

SimCorp Dimension contains utilities for cleaning up unused files in the SimCorp Dimension installation folders.

The task **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Installation Administration** > **Cleanup Extraneous Files** removes obsolete SimCorp Dimension files.

Other cleanup tasks are provided throughout the system in relevant modules. These tasks can be used to delete data no longer needed in the database.

## 6.2 Security Management

Information Security Management is a very comprehensive topic. There are several sets of standards and recommendations such as ISO 17799. SimCorp Dimension user authentication is handled by the Oracle Database hence the users' passwords are not stored in SimCorp Dimension.

Oracle has many security features (for example "Advanced Security") that can be used to comply with a chosen set of security guidelines and recommendations. Oracle is committed to support state of the art security practices including ISO 17799. More information on this may be obtained from Oracle.

Apart from Oracle, best security practices should also be applied to the Operating System, Networks etc. Please refer to guidance from the associated vendors.

### 6.2.1 Operating System Authenticated Users

Users created in SimCorp Dimension with OS authentication map directly from Windows users to Oracle users. The users are logged directly into SimCorp Dimension and the Oracle database without being prompted for user credentials. The system then uses the actual user's operating system credentials for login.

If you allow Windows users to create new users on their machines these can take the identity of OS authenticated users in SimCorp Dimension. Therefore, we strongly stress that you only should use OS authentication for installations where the Windows accounts have limited rights and you should never create users in the database with OS authentication for the SimCorp Dimension data owner (SCDAT), the SimCorp Dimension system owner (SCSYS) and the Oracle users "SYS" and "SYSTEM". In general, creating users with OS authentication should always be done with careful regards to security.

### 6.2.2 Audit Trail

Description and detailed technical requirements of the solution for Audit Trail and audit archiving can be found in the SimCorp Dimension ***Audit Trail & Four Eyes Principle*** User Manual and ***Archiving*** User Manual.

Please note that the following prerequisites must be in place for using the audit archiving solution: An Oracle directory must be created - and read and write access granted to the SimCorp Dimension data owner (for instance SCDAT). You can create the directory during the upgrade or you can create it manually afterwards. In the latter case, please refer to the ***Archiving*** User Manual.

| | |
|---|---|
| **Note** | SimCorp Dimension supports database table partitioning on the audit tables. This will allow for a much faster cleaning up of the tables after archiving. Please refer to section 6.1.3 "Partitioning" for more information. |

### 6.2.3 Virus Scan

It is recommended to exclude the complete SimCorp Dimension application root folder from the virus scan or if possible to restrict anti-virus disk sweep to times when SimCorp Dimension is not running.

Likewise it is recommended, on the Oracle database server, to exclude all Oracle data-, temp-, redo-, control- and archive files from the virus scan or if possible to restrict anti-virus disk sweep to times when the database is down.

In addition please refer to known issues in section 8.2 “Anti-Virus”.

### 6.2.4 Backup and Archiving

The database system has to be backed up in accordance with normal production routines.

As SimCorp Dimension applies changes both to the SimCorp Dimension database schema as well as the SimCorp Dimension program folders, backup of all SimCorp Dimension folders and files must be performed when backing up the database.

It will not be possible to start SimCorp Dimension if the patch level of the SimCorp Dimension program files differs from the patch level of the database schemas.

For information on archiving, please refer to the SimCorp Dimension ***Archiving*** User Manual.

## 6.3 Availability Management

This section describes a number of tasks and considerations that will help improving uptime for SimCorp Dimension.

### 6.3.1 Single Point of Failure

Besides the database and file server, the MUCS server has a direct impact on the user sessions. An application server or batch job failure will only affect the job currently being processed by the server or batch job and any jobs derived thereof. If the MUCS server disappears, all SimCorp Dimension sessions (also servers and batch jobs) will try to reconnect to the MUCS server for a configurable timeout period, unless a failover MUCS process is running.

The built-in failover solution for the MUCS server is described in section 4.2.2.1 “MUCS Failover Configuration”.

The SimCorp Dimension Communication server can be protected using a fail over solution which is described in the SimCorp Dimension ***Communication Server*** User Manual.

Fail over solutions for file and database servers must be implemented using third party solutions.

There is no automatic failover for sessions started as SimCorp Dimension application servers (for instance, calculation servers) and batch jobs. These elements should be monitored and restarted if unintentionally interrupted. Please refer to section 6.3.2 “Monitoring the Infrastructure” for more information.

### 6.3.2 Monitoring the Infrastructure

Monitoring of infrastructure is outside the scope of SimCorp Dimension and should be customised using third party monitoring facilities. The following provides an overview of the SimCorp Dimension functionality which is available for third party monitoring.

When running SimCorp Dimension servers or batch jobs, a Command script error level will be returned when SimCorp Dimension exits. This method can be used to monitor SimCorp Dimension application servers and batch jobs (for servers started as Windows services please refer to section 7.15.5 “Logging”).

Further information and a description of the different error levels returned by the scd.exe application can be found in section 6.6.6 “Returning Error Levels”.

SimCorp Dimension servers can also be monitored by third party software using the Server Status tool (ref. section 6.3.3 “Monitoring Servers”) or through the application using **Server Monitor**.

Likewise, the batch log created during the processing of a batch job can be monitored through Command scripts. Please refer to section 7.3 “Codes in the Batch Log” for a list of codes written to the batch log during processing.

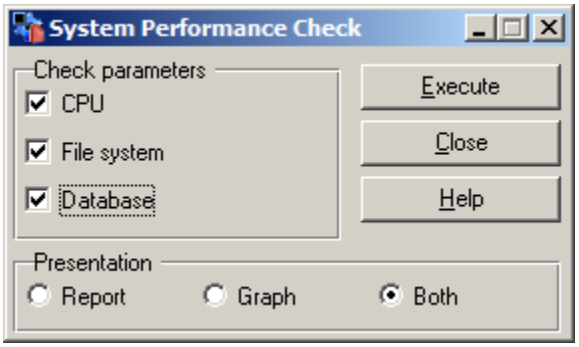
Additionally, it is possible to route information (status, alert or exceptions) externally from SimCorp Dimension, for example using e-mail (servers, batch jobs) or for some areas messages sent by the Communication Server via, for instance, WebSphere MQ.

An automatic failover solution exists for the MUCS server, but the MUCS server can also be monitored using third party monitoring tools. Please see section 6.6.7 “MUCS” for more details on the MUCS server, and section 4.2.2.1 “MUCS Failover Configuration”.

Monitoring of the Oracle database, for instance disk space usage, availability, the alert log etc. can be done through third party Oracle monitoring tools or various Oracle products, like Oracle Enterprise Manager. Please refer to Oracle documentation.

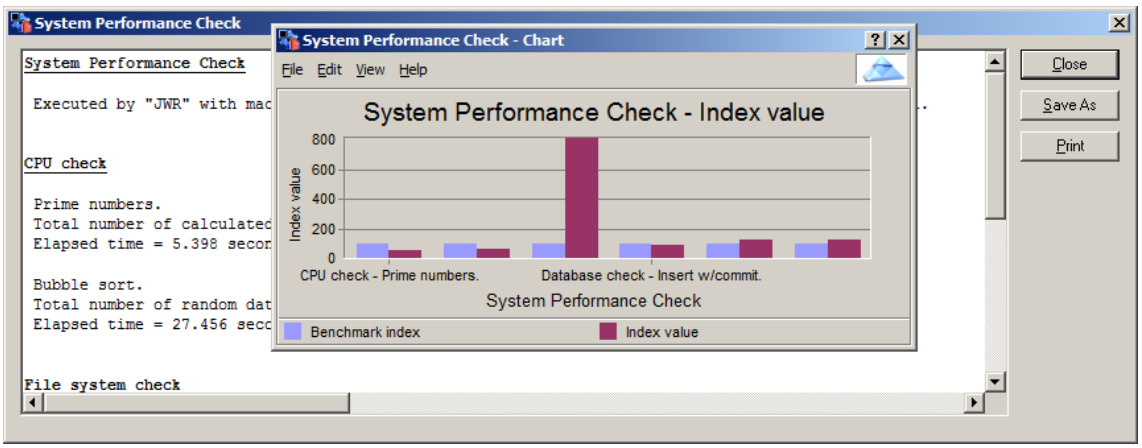
General monitoring of server hardware can be done through any available third party monitoring software. Both database and file server can be protected through third party fail over solutions.

A useful utility in SimCorp Dimension is the System Performance Check, found at **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Installation Administration** > **System Performance Check**:




It is a lightweight system performance check of the client computer which checks CPU usage, file system and database access. The result of each test is compared to a benchmark value, where a calculated index value above 100 means better system

performance than the benchmark and a value below 100 means worse system performance than the benchmark. The results of the check can be delivered as a report, a graph, or both.




### 6.3.3 Monitoring Servers

When a server is started, it is registered in SimCorp Dimension as running. If the server is idle, it will, once every minute, update the **Last respond** field in the **MAINTENANCE** > **SERVER ADMINISTRATION** > **Server Monitor** task. If the server is executing, the **Last respond** field is updated between each task.

For external monitoring of the servers (by a third party tool) the Server Status tool is provided. Server Status tool consist of a Command Line tool SrvStat.exe which is provided in the installations Bin folder. The tool will return in %ERRORLEVEL% (and write to the SCD.LOG) a code indicating the status of a given server. The meanings of the codes are described in section 6.6.6 “Returning Error Levels”.

The Command line interface for the Sever Status tool is as follows:

```
SrvStat.exe -server=<Server Id> -status[ex] -wait [-
deadresponsetime=minutes]
```

Where

- `-server` gives the server name of SimCorp Dimension server to query status on.
- `-status[ex]` gets status or extended status. Please see example below.
- `-wait` do not exit to the Windows environment until the application exits and return an error level code in %ERRORLEVEL%.
- `-deadresponsetime` gives the amount of minutes you allow a SimCorp Dimension server to not have responded before the server should be declared as 'Not running'. Default is 15 minutes.

**Examples**

`…\Bin\SrvStat.exe -server=calcsrv –wait -status` will return 0 in %ERRORLEVEL% if the SimCorp Dimension server “calcsrv” is operational.

`…\Bin\SrvStat.exe -server=calcsrv –wait -statusex` will return a code indicating a more detailed status of server “calcsrv”, for instance 30, meaning “Server status: Idle”.

`…\Bin\SrvStat.exe -server=calcsrv –wait -statusex -deadresponsetime=10` will return 35, meaning “Server status: No response”, if there has been no respond from “calcsrv” inside the last 10 minutes.

These options are also available in the same manner used on scd.exe. Please refer to section 7.1.1 “scd.exe”. In addition please refer to section 6.6.6 “Returning Error Levels / Exit Codes” for a list of return codes.

If a server session ends abnormally (for instance being killed in the Windows **Task Manager**), the server may still have a status as 'running' in SimCorp Dimension for a while, until the system updates the status. The status is updated when a server is loaded into the **Server Administration** or **Server Monitor** applications. When starting a server the status of all servers registered as running will be checked. Finally the servers are “watching” each other, meaning other servers will detect that the server is “missing” and change the status to ‘Ended’ (unless this feature is disabled in **Show System Configuration Servers Disable servers watching each other**).

In a situation of abnormal termination it may be required to use the `-!forcestop` option. Please find examples on its use in section 6.1.1 “Copying Data”.

#### 6.3.3.1 Database tracing on Servers

It is possible to make a database trace of a SimCorp Dimension server. A database trace can be useful in order to troubleshoot bad performing jobs running on a server.

Tracing of a server is started from the **MAINTENANCE** > **SERVER ADMINISTRATION** > **Server Monitor** task by selecting the server to trace and from the **Functions** menu choosing **Database Trace** - **Start**. The trace will continue until **Database Trace** - **Stop** is chosen or the server is closed down. Normally a particular job being executed by a server has been identified as bad performing and it is this job that is interesting to trace. In this case start the trace of the server first, then submit the job, and when the job is complete, stop the trace of the server again. If the job is to be executed in load balancing, trace must be started for all the calculation servers participating in the load balancing job.

The trace file will be created in the database user dump destination and can be handled like all Oracle 10046 traces, such as formatted with Oracle utility TKPROF, in accordance with Oracle documentation. If a load balancing job or otherwise multiple servers have been traced there will be one trace file per server traced. If the functionality being trace is utilising parallel processing in Oracle, the parallel slave processes will also be traced. Their trace files will be created in the database background dump destination.

| **Note** | In order to avoid flooding the trace dump destination the Database Trace should be done only for the required time and stopped thereafter. |
|---|---|

#### 6.3.3.2 Application Tracing on Servers

Application tracing can be turned on remotely from **MAINTENANCE** > **SERVER ADMINISTRATION** > **Server Monitor** or **MAINTENANCE** > **SERVER ADMINISTRATION** > **Server Administration**. This captures application tracing as specified by the trace configuration file.

Tracing can be turned on for a running server, but cannot be turned off as long as the server is running. When the server is restarted then tracing is off by default.

#### 6.3.3.3 External Monitoring of Servers and Batch-job Status – An Example

The status of SimCorp Dimension application servers and batch jobs can be viewed through various tasks and logs in SimCorp Dimension. The status of SimCorp application servers can in addition be obtained by using the Server Status tool – please refer to section 6.3.3 “Monitoring Servers“ .

The SQL script below can be used to externally monitor the status of all servers in SimCorp Dimension. It shows the Server name, the actual status, the Hardware id, if the server runs as a Windows service(isservice=1) and the workspace size.

The queries can be used in management console applications when support personnel do not have access to the SimCorp Dimension portal to do surveillance of these SimCorp Dimension components.

```
Select server,
       serverstat,
       machineid,
       isservice,
       wssize
From SERVERSTATS,
     SERVERS
   Where serverstats.serverik=servers.serverik;
```

Values in serverstat are:

1 = Executing
2 = Ended
3 = Receiving
9 = Terminated with error
10= Reconnecting
13= Idle
15= Restart

The SQL script below can be used to externally monitor the status of all batch job groups in SimCorp Dimension. It shows the Batch group name, the actual status, start time and if ended the last end time, the Hardware id and the workspace size.

```
Select bjobgrp,
       bjobstat,
       To_Char(laststartts, 'YYYY-MM-DD hh24:mi')
       Lastexectime,
       Machineid,
       wssize
From BATCHSTATS,
     BATCHJOBGRPS
   Where batchstats.bjobgrpik=batchjobgrps.bjobgrpik;
```

Values in bjobstat are:

0 = OK
1 = Failed
2 = Cancelled/stopped
3 = Not executed
4 = Executing
5 = N/A
6 = Not active

The queries can be used in management console applications when support personnel do not have access to the SimCorp Dimension portal to do surveillance of these SimCorp Dimension components.

The Oracle user performing the above queries will need the appropriate permission to read the tables. The tables are owned by the SimCorp Dimension data owner (**SCDAT**). This permission can be obtained by granting the Oracle user the SimCorp Dimension select

role (**SCREPROLE**) – for more information on this role please refer to section 4.1.4.7 “Database Users and Roles”.

Other tables useful for monitoring outside SimCorp Dimension are:

- ONLCONNSTAT is a representation of the 'Status for external providers mask' (for instance, the database field ONLCONNCURMARKITEMS could contain the number of Reuters RIC's currently requested).
- SERVERPROCESSES contains information about calculation server jobs.
- ERRORLOG holds extended information that is not part of the batch log files.
- HISTORY CONTAINS historic information for servers and batch job groups. Historytype=0 is information from servers and Historytype=1 is information from batch job groups

### 6.3.4 Metadata

Occasionally, you will be asked to collect metadata and return the output to SimCorp. In **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Installation Administration** > **Transfer Meta Data to SimCorp** you are able to collect the metadata and transfer the information back to SimCorp. The data is transferred to SimCorp using e-mail or Operational Data Assistant if configured (for more details on this please refer to section 2.4.2 “Operational Data Assistant Solution”).

When running **Transfer Meta Data to SimCorp** you will be prompted to connect as an Oracle DBA type user. As a minimum the Oracle user must have the following object privileges granted:

```
SELECT ON DBA_DATA_FILES
SELECT ON DBA_INDEXES
SELECT ON DBA_SEGMENTS
SELECT ON DBA_SEQUENCES
SELECT ON DBA_TABLES
SELECT ON DBA_TABLESPACES
SELECT ON DBA_TS_QUOTAS
SELECT ON V_$ARCHIVED_LOG
SELECT ON V_$DATABASE
SELECT ON V_$INSTANCE
SELECT ON V_$LICENSE
SELECT ON V_$LOG
SELECT ON V_$NLS_PARAMETERS
SELECT ON V_$OSSTAT
SELECT ON V_$PARAMETER
SELECT ON V_$SGA
SELECT ON V_$SYSTEM_EVENT
SELECT ON V_$SYS_TIME_MODEL
```

And if the Oracle Tuning & Diagnostics Packs is licensed:

```
SELECT ON DBA_HIST_ACTIVE_SESS_HISTORY
SELECT ON DBA_HIST_FILESTATXS
SELECT ON DBA_HIST_SNAPSHOT
SELECT ON DBA_HIST_WR_CONTROL
```

Additionally the user must also be granted the CONNECT role, as well as the SimCorp Dimension user role (SCROLE). These privileges are also relevant when collecting metadata in earlier versions of SimCorp Dimension.

A script is included on the upgrade media (Upgrade\ScMetaGrants54.sql) that can be used to grants privileges.

The metadata queries are strictly non-intrusive and the data collected is only related to the Data Dictionary information. In other words, no business logic or potentially sensitive information is collected. A more detailed description of the data collected can be provided

by your local support office. Alternatively the SCMeta sql file, generated in the installation's Tmp folder when **Transfer Meta Data to SimCorp** is run, can be viewed in a text editor.

SCMeta is a tool used by SimCorp for predicting clients' database evolvement and has been developed in order to get a better understanding of real-life data composition, physical database sizes etc. SCMeta is a database containing information about client installation data. This information provides a wide spectrum of possibilities to monitor and predict how client databases evolve, for instance which areas to focus on in terms of data size, performance and developing modules for upgrade programs.

### 6.3.5 Strategy for handling Memory Shortage

In 64-bit Windows, physical memory shortage will appear as extreme performance degradation, because the much-slower-than-RAM disk is used as a physical memory extension. There are basically two ways to deal with physical memory shortage: Add more memory or reduce the load. Of course, it is worthwhile to investigate closer which exact processes claim most physical memory.

Among the ways to lower the memory load is to control the size of the unit of work that is requested processed in SimCorp Dimension, through splitting up the work in smaller chunks reducing the memory required to process each chunk. Please refer to section 4.1.2.2 "Memory Allocation Balancing" for more details.

## 6.4 Performance Management

This section shows how to achieve a proper utilisation of available resources in the system environment.

### 6.4.1 STP and Reservation

To avoid more STP servers processing the same transaction at the same time, reservation is used. It is a very simply reservation where the servers calculate an expected processing time when reading the message. It then reserves the message and other servers are not allowed to touch the transaction in this time frame.

The reservation time can be specified in three ways (done in **MAINTENANCE** > **SERVER ADMINISTRATION** > **Server Administration** on the **Reservation** tab):

1. Automatically, where the servers themselves calculate the number of messages and the reservation time based on available resources
2. Semi-automatically, where the servers calculate the reservation time
3. Manually, where the delay per message and minimum delay must be specified

If using manual reservation, the best way to set these values is by estimating how long do this operation normally take and then use this as a guideline. For example, if it is the STP status service (which raises transaction in status), you have to know the approximately time it takes to raise a transaction in status, if this is 5 seconds per transaction the **Delay pr record** should be set to 10 seconds (2 times the normal time, at least), and the **Minimum delay** to 60. If reading only 2 transaction they will be reserved in 60 seconds, as the minimum delay is more than 2 times 10, if reading 20 transactions they will be reserved in 200 seconds.

If it takes longer time than expected to process a message, all the changes done by the server will be rolled back, and a message like "10 messages expired" will be written to the log. Meaning when "message expired" is written to the log; the problem is that it takes longer time to process the message than it is reserved.

For some special STP services, it's vital that the reservation is set “correctly” as wrong settings may lead to strange side effects. For instance, for a service writing dealer slips, as a dealer slip cannot be rolled back (it has been printed by the printer), it is very important that a message never expires, and therefore the reservation parameters must be set as high as required.

| Note | The only thing influenced by these parameters is how long it will take the other servers to take over if the current server crashes. It has NO influence on performance. |
|---|---|

If you experience many (more than a couple a day) “message expired” messages in the server log this should be addressed. As described above the server will do all the work, but if the reservation is expired, all the work will be rolled back, meaning a lot of “lost” work. Most problems with expired messages are either “wrong setup” or “something has changed”. If the servers have been running for a longer period, and “message expired” messages starts to occur, it should be investigated further (what have changed, the database, the data volume, the way things are done, etc). If it occurs in a newly configured system, the reservation parameters should be checked.

### 6.4.2 STP and the NOWAIT Option

When STP servers search for transactions linked to the transactions found in the queue it has to ensure that no one else touches the transaction. This is done by an Oracle technique called “SELECT FOR UPDATE” and this can lead to deadlocks.

SimCorp Dimension contains an advanced configuration option: **Use “NOWAIT” when searching for linked transactions**. If this option is check marked in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **Show System Configuration**, on the **Servers** tab, the “SELECT FOR UPDATE” statements will be issued with NOWAIT. This will minimize the chances for deadlocks, but it negatively influences the performance of the STP servers.

### 6.4.3 Server Polling

For some server types polling is used to find if any work is ready for a server. The polling interval is specified using the **Time to wait before looking for new jobs** field in **MAINTENANCE** > **SERVER ADMINISTRATION** > **Server Administration**. The polling interval is only used when a server has nothing to do. Then it will “go to sleep” and after x seconds/minutes (the time specified in **Server Administration**) it will look if there is anything to do. As long as work exists, the server will NEVER “go to sleep”, meaning a server will always end a given job by querying the database to see if new jobs are ready to be processed, and continue with the next job if present. A longer polling interval means a less intensive load on the database, but it also means it can take longer before the server “finds” the work to do. For instance, setting the polling interval to 1 minute instead of 2 seconds will reduce the load at the database with a factor of 30; the downside being it can take up to 1 minute before the server detects the work in the case where the server is in status idle.

#### 6.4.3.1 STP Servers

An inefficient configuration of the STP servers can generate a very heavy load on the database (nearly bring the database/system to a stop).

When configuring a STP server, the polling interval should never be set to less than 10 seconds unless some very good business reasons exist.

The polling interval should be raised to the maximum business can accept. For example, is it vital that a transaction is lifted in status after 5 seconds instead of 1 minute? If not, the polling time should be 1 minute. If a transaction server only receives work between 12:00

and 12:15, does a polling interval of 2 seconds make sense? The question to ask: “does it influence the business if the processing of the first transaction starts at 12:00:02 or 12:01:00 or even 12:05:00?” If not, the polling interval should be 1 minute or even 5 minutes. You could also, in this case, consider starting up the server every day, for instance at 11:45 and shutting down again at 12:30.

Another approach to reduce the load from the STP servers could be only to activate them when relevant, either by only starting it when needed, or by changing the configuration in **MAINTENANCE** > **SERVER ADMINISTRATION** > **Server Administration**. For example, if transactions always arrive between 10 and 14 the transaction service can be configured only to be active in this period, meaning **Start at** 10:00 and **End at** 16:00, this way the transaction service will only look for new transactions in the period from 10 to 16 (6 hours): 6 hours = ¼ day, if no other changes has been made the load from this server will be reduced to a ¼.

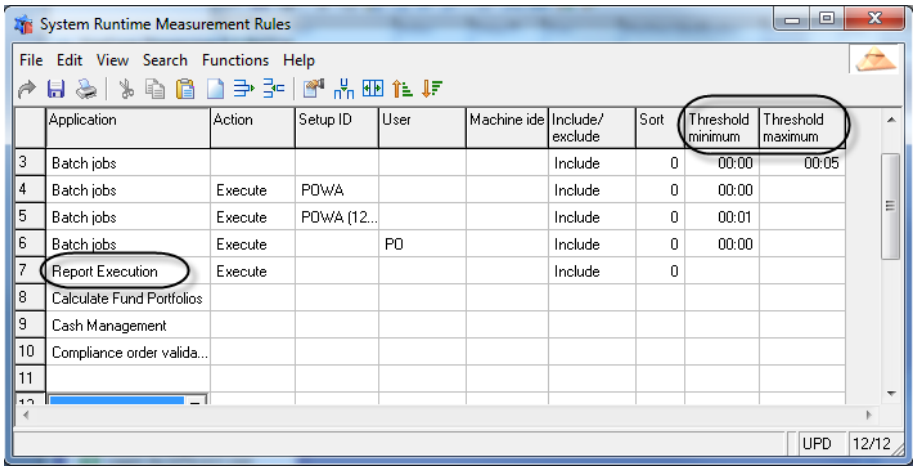
### 6.4.4 System Runtime Measurements

SimCorp Dimension provides a set of tools for measuring and gathering data related to system runtime. This is useful for analysing how runtimes evolve over a period of time, particularly for trend analysis, for identifying performance degradations, and for monitoring Service Level Agreements (SLA) fulfilments.

In order to gather system runtime measurements, they must first be enabled in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **Miscellaneous Options** on the **Miscellaneous – 3** tab, by selecting the **Enable runtime measurement** check box.

The **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Runtime Measurement** > **System Runtime Measurement Rules** task can then be used for defining the applications and actions to be measured for system runtime.

For instance, **Report Execution** is an available application to monitor:




It is possible to set a minimum and maximum threshold time for the various rules. If a threshold is exceeded, then it will be shown in the **SRM Viewer**.

### 6.4.5 SRM Viewer

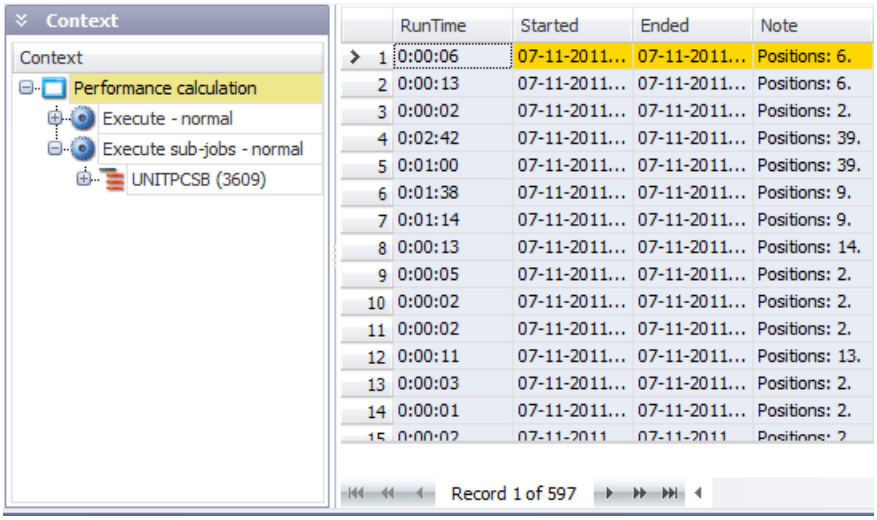
The **SRM Viewer** is part of **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Manager** (available from the drop-down menu of the **Show** button).

Applications that have been defined for runtime measurement in the tasks

- **System Runtime Measurement Rules**
- **Manual Runtime Measurement**

both in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Runtime Measurement**, can be monitored in the **SRM Viewer**.

Server statistic for calculation servers are now shown in the **Note** field of the **SRM Viewer** if a server is used to execute the job with load balancing.




## 6.5 User Management

SimCorp Dimension uses Oracle RDBMS for authentication of its users. This section describes how Oracle is used for logon.

The ***System Access*** Manual explains practical user management in more details, while this section adds some of the technical details, especially focusing on the database.

### 6.5.1 Overview of Design and Solution

For each user in SimCorp Dimension there is an Oracle account and each user logon is using Oracle credentials.

| Note | An ordinary user logged on to the database using third party tools will not be able to update any data in any SimCorp Dimension tables in the actual database. |
|---|---|

Authorisation to tasks, commands and data are managed through the application. Please refer to the SimCorp Dimension ***System Access*** User Manual for more information on this topic.

A database role, also referred to as the user role, for instance SCROLE, is granted to the users created in SimCorp Dimension by the use of an Oracle package owned by the data owner (SCDAT). If a user is marked as **Inactive** in SimCorp Dimension the user role is revoked.

In order to ensure users can only access data through SimCorp Dimension (and not from third party software such as SQL*Plus) the following is implemented:

- The user role is granted as `NOT DEFAULT ROLE`
- The user role is password protected

When a role is granted as `NOT DEFAULT ROLE` a `SET ROLE <user role>` must be issued immediately after the user has connected. As the role is password protected it is necessary to supply this command with `IDENTIFIED BY <password>`. This is done by SimCorp Dimension as a part of the logon procedure.

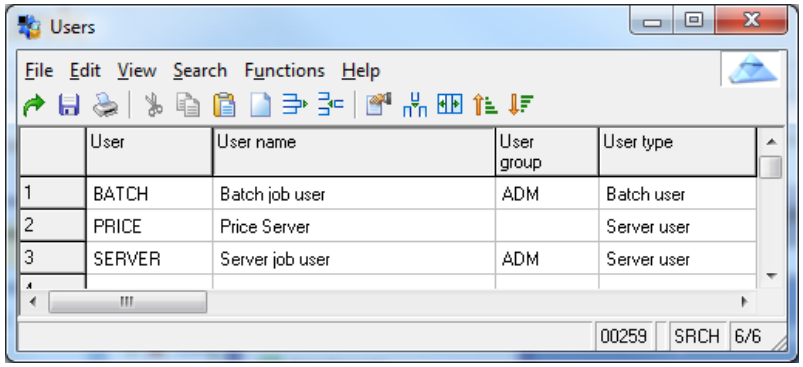
The password for the user role is not stored anywhere. The password is generated each time it is needed. The password is generated by a locked function in the application code. The generated password is furthermore MD5 hashed and cannot be “dehashed”. The password is different for each client. The password for the user role should therefore not be changed manually from the database side. The same principle is used for the users 'BATCH' and 'SERVER'.

#### 6.5.1.1 User Types – Server and Batch

The users SERVER and BATCH are special users with their own user types **Server user** and **Batch user** respectively.

System administrators may be authorised (by the SUPERVISOR) to use **MAINTENANCE** > **SYSTEM ACCESS** > **User Administration** > **Show Authorisation for User** to see the access assigned to users with user types **Server user** and **Batch user** and to create and authorise users including users with these user types.

This is done through **MAINTENANCE** > **SYSTEM ACCESS** > **User Administration** > **Users**:




The user types **Server user** and **Batch user** cannot logon as ordinary interactive users and will not be forced to change password at regular intervals as specified in **MAINTENANCE** > **SYSTEM ACCESS** > **Security Options**.

### 6.5.2 Unattended Logon

The system can be configured so logon is possible without providing a password. This is stated in the configuration file (`…\data\Cnf.ini`) with the entry `useosaut=0/1`. (Please refer to section 4.2.1 “Configuration File” for detailed information on the Cnf.ini file).

If the `useosaut` parameter is set to `0` or absent, it means that the installation will prompt for user/password for all users. If set to `1`, **Normal** type users may only logon if their Windows account is called the same as their SimCorp Dimension account. Then they will not be prompted for user id and a password, but be operating system authenticated.

| **Note** | Please be aware of the known issue stated in 6.2.1 “Operating System Authenticated Users”. |
|---|---|

Unattended logons (without prompt for password) for **Normal**, **Server** and **Batch** type users can be done in two ways:

1. Logon using OS authenticated users
2. Logon using user/password on the Command line or in short-cut

The requirements for using OS authenticated users are:

- The init.ora parameter `REMOTE_OS_AUTHENT` must be set to `TRUE`
- The recommended setting for the init.ora parameter os_authent_prefix is "OPS$" and should not be blank
- `SQLNET.AUTHENTICATION_SERVICES` must be set to `(NONE)` in Sqlnet.ora
- The name of the Windows user is the same as the SimCorp Dimension user

| | |
|---|---|
| **Note** | SimCorp Dimension does not support OS authenticated users on Windows based database servers where the Registry parameter `OSAUTH_PREFIX_DOMAIN` has been set to true. |
| **Note** | With Oracle 11*g* the `REMOTE_OS_AUTHENT` parameter has been deprecated. Oracle still supports the use of the parameter being retained for backwards compatibility. The legacy method, using `REMOTE_OS_AUTHENT=true` described in this section is therefore also still supported. |

If a **Normal** type user is not OS authenticated, the user name and password may be given together with the `-u` option for scd.exe file (please refer to section 7.1.1 "scd.exe"). If the user is OS authenticated, but the username logged on to Windows is different from the SimCorp Dimension username, it is not possible to log on to SimCorp Dimension; not even using the `-u` option.

The standard batch user (called BATCH) and the standard server user (called SERVER) are always able to logon without a password. If the `-batch` or `-server` options are used and no `-u` option is used, the SimCorp Dimension user BATCH or SERVER will implicitly be logged on.

| | |
|---|---|
| **Note** | The password for the Oracle user BATCH and SERVER is generated by SimCorp Dimension during installation/upgrade. If the passwords for these two users are changed, it will not be possible to use standard batch or server (BATCH/SERVER) user any more. Only other users created of type **Batch** or **Server** can be used in this case. |

Users created of type **Batch** or **Server** in SimCorp Dimension can log on unattended, provided `REMOTE_OS_AUTHENT` is `TRUE` and the Windows user used to start the batch or server has got the same name as the Batch or Server type user. If the Windows user has got a different name, then the batch or server must be started by providing a username and password on the command line.

| | |
|---|---|
| **Example** | `scd.exe -batch=EOD -u=MYBATCH/PassWord` |

The following table shows which user will be logged on in the database, depending on whether remote authentication is used or not, in relation to the Windows account used to run the batch or server process.

| Conditions | Value/User logged on | |
|---|---|---|
| remote_os_authent | FALSE | TRUE |
| os_authent_prefix | N/A | OPS$ |
| Windows user is not MYBATCH/MYSERVER: | | |
| -BATCH=EOD | BATCH | BATCH |
| -BATCH=EOD -USER=MYBATCH | N/A | N/A |
| -BATCH=EOD -USER=MYBATCH/PassWord | MYBATCH | MYBATCH |
| -SERVER=CALC | SERVER | SERVER |
| -SERVER=CALC -USER=MYSERVER | N/A | N/A |
| -SERVER=CALC -USER=MYSERVER/PassWord | MYSERVER | MYSERVER |
| Windows user is MYBATCH/MYSERVER; | | |
| -BATCH=EOD | BATCH | BATCH |
| -BATCH=EOD -USER=MYBATCH | N/A | OPS$MYBATCH |
| -BATCH=EOD -USER=MYBATCH/PassWord | MYBATCH | MYBATCH |
| -SERVER=CALC | SERVER | SERVER |
| -SERVER=CALC -USER=MYSERVER | N/A | OPS$MYSERVER |
| -SERVER=CALC -USER=MYSERVER/PassWord | MYSERVER | MYSERVER |

The users BATCH and SERVER are never created as OS authenticated users in Oracle. If the

`-batch` and `-server` parameters are used without the `-user` parameter the BATCH and SERVER users are used.

If `REMOTE_OS_AUTHENT` is `TRUE` normal users are created as OS authenticated users in Oracle. Batch and Server type users are created both as operating system authenticated and as password authenticated users in Oracle.

OS authentication can therefore be used for **Batch** and **Server** type users, regardless of the setting of the configuration file (Cnf.ini) parameter `useosaut`. So it is possible to have the system prompting **Normal** type users for password and let only **Batch** and **Server** type users be OS authenticated.

Please refer to section 6.6 “Distributed processing” for more information on executing batch and application servers.

#### 6.5.2.1 When the Password Is Always Required

SimCorp Dimensions users of user type **Supervisor** and **System Administrator** must always provide a password and cannot be created as OS authenticated users. The SimCorp Dimension user **SUPERVISOR** will log on to the database as the Oracle user **SUPERVISOR**. The users created as the **System Administrator** type will log on to the database with their SimCorp Dimension username. The same rules apply to users of type **SimCorp Consultant** and **System owner**, but these types of users must in addition to their Oracle password, provide SimCorp initials and a SimCorp generic “password”.

The user **SCSYSTEM** login follows the same principle as for SimCorp Consultant type users, that is: login with **SCSYSTEM** and password for this user and then at the next prompt provide the SimCorp initials and the SimCorp generic “password”.

The data schema owner (SCDAT) and the system schema owner (SCSYS) are not visible in SimCorp Dimension as users. It is only under certain circumstances that SimCorp Dimension connects to the database as these users and in these situations password must always be provided. It is not possible to log into SimCorp Dimension using these users.

Being logged on to the database as the data or system schema owner is only relevant for very few tasks in the system (applying patches or ins-file update, running **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Verify Database Structure**), and SimCorp Dimension will prompt for logon when these are needed. A SimCorp Dimension user must be authorised to the given task and logged on in order to get the logon prompt for the data or system schema owner. Likewise, in order to change the password for these users.

### 6.5.3 Multiple Installations in the Same Database

If there is more than one SimCorp Dimension installation on the same database instance, the amount of Oracle accounts will be the union of all users in the SimCorp Dimension installations.

If a certain user has the same username in more than one SimCorp Dimension installation on the same database instance, this particular user will use the same Oracle account in all SimCorp Dimension installations. This means that if the password for a given user is changed in one installation, this password must be used in all installations on the same Oracle instance.

| | |
|---|---|
| **Note** | SimCorp strongly recommends a separate Oracle instance for each installation. |

Although not recommended, if you are running more than one SimCorp Dimension installation on the same Oracle instance and if your usernames are the same in all the SimCorp Dimension installations on that instance, the same physical Oracle accounts will be used. Because one user may only be linked to one profile, changes in the password settings in one installation will affect the setting for all SimCorp Dimension installations in that instance. This is one of the reasons it is recommended that you only have one SimCorp Dimension per Oracle instance.

| | |
|---|---|
| **Note** | The passwords for the standard batch and server users (BATCH and SERVER) are generated by SimCorp Dimension. If more installations use the same Oracle instance, it might only be possible to use the users BATCH and SERVER in one of the installations. In that case Batch and Server type users must be created in the other installations sharing the instance. |

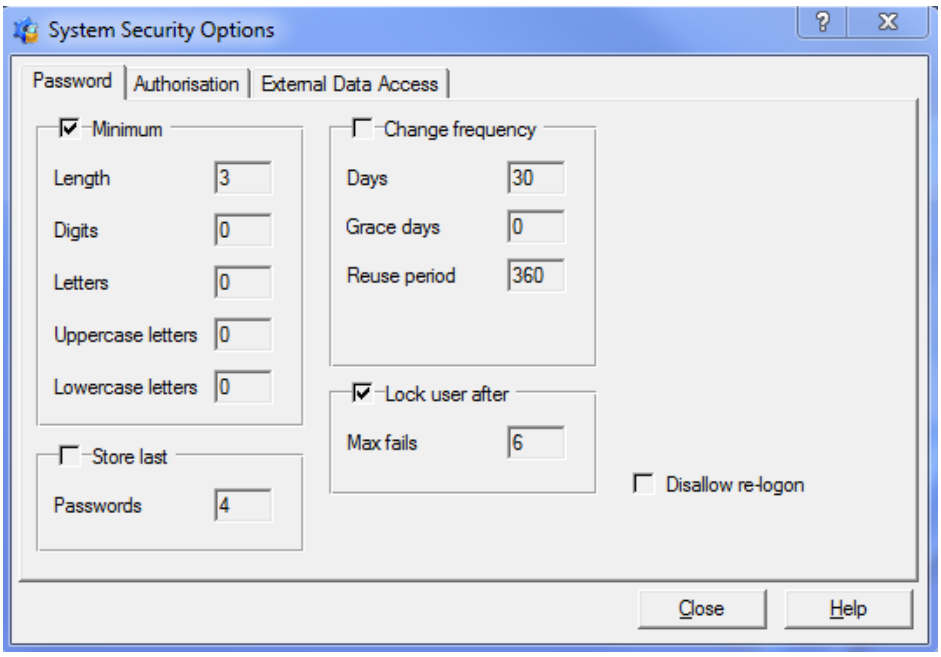
### 6.5.4 User Names and Passwords

All SimCorp Dimension user names are mapped directly to Oracle account names (Oracle users). Therefore, the user names are under the same restrictions as Oracle usernames:

- Double- quote (“) and semi-colon (;) are not allowed
- must not contain trailing blanks
- maximum length 30 characters

Please refer to the official Oracle documentation (for example the Oracle books: ***SQL Reference*** and ***Administrator’s Guide***) for more information on the Oracle rules for naming.

A subset of the password configuration parameters on the Oracle profile which is assigned to all SimCorp Dimension users can be configured in SimCorp Dimension in **MAINTENANCE** > **SYSTEM ACCESS** > **Security Options**:




System Security Options is accessed via System Access and can only be changed by SUPERVISOR.

Please also be aware of some special needs, considerations and known issues, as described in

- Section 6.5.3 “Multiple Installations in the Same Database”

### 6.5.5 Auditing Database Logon Activity

In order to audit logon activity system-wide auditing must be enabled in the database and the Oracle parameter audit_trail must be set to DB, which causes audited records to be written to the database audit trail (the SYS.AUD$ table in the SYSTEM tablespace – not to confuse with the SimCorp Dimension audit trail).

In order to enable audit trail in the database the Oracle command AUDIT SESSION must be executed from, for instance, SQL*PLUS by an Oracle user which have been granted the AUDIT SYSTEM privilege.

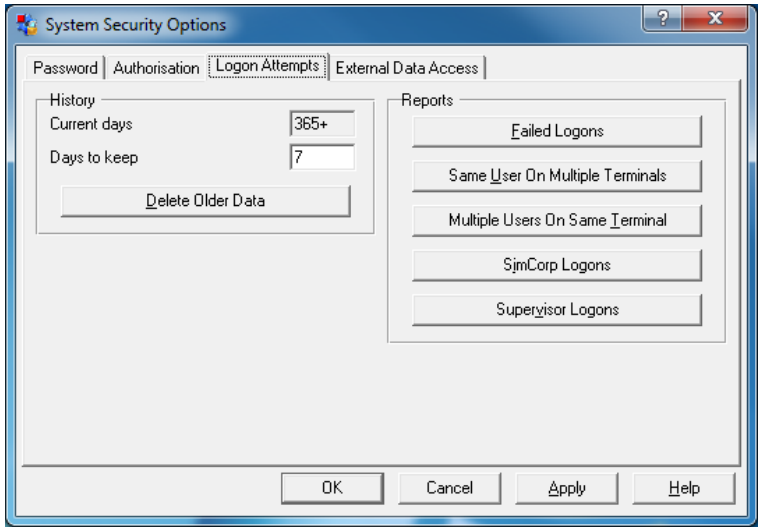
| **Note** | Always ensure there is available space in the SYSTEM tablespace for the audit information. Alternatively relocate the Oracle audit trail tables to a dedicated tablespace, following Oracle documentation/guideline for this. |
|---|---|

If the Oracle audit trail is completely full and connections are being audited, users cannot connect to the database because the associated audit record for the connection cannot be inserted into the Oracle audit trail. In this case a connection to the database such as SYS (operations by SYS are not audited) must be established and more space made available in the Oracle audit trail.

Alternatively, the size of the Oracle audit trail must be reduced. Oracle provides a PL/SQL package (dbms_audit_mgmt) that can purge old data and relocate the audit trail.

Remember to copy information to another database table if data in audit trail are to be kept.

In **Security Options** in SimCorp Dimension it is possible to view a few reports from the Oracle audit trail, when logged in as SUPERVISOR:




**Note** If more than one SimCorp Dimension installation resides in the same instance the reports will show Oracle audit trail information from all the installations using the same instance.

Customised reports can be created by querying the Oracle view DBA_AUDIT_SESSION. For example to see users that share a PC the following SQL can be executed from a third party Oracle query tool, for instance SQL*PLUS:

```
Select
  Count(Distinct(username)) As cnt,
  terminal
From
  dba_audit_session
Having
  Count(Distinct(username))>1
Group By
  terminal
Order By
  cnt Desc,
  terminal
```

Please refer to Oracle documentation for more information on creating reports for audit of user logons.

In order to view the reports from **Security Options** it is a prerequisite that the Oracle parameter audit_trail is set to DB, audit is enabled with AUDIT SESSION and the user role (SCROLE) and the data and system owners (SCDAT and SCSYS) have been granted select on the Oracle view DBA_AUDIT_SESSION. More detailed auditing is outside the scope of SimCorp Dimension and if required, it must be set up and managed in Oracle. Please refer to Oracle documentation for more information on auditing options.

The SimCorp Dimension data owner (SCDAT) contains a table USERLOGONS which is used for the auditing of SimCorp Consultant type users. Use this table in combination with the Oracle standard auditing views, in order to see which SimCorp employee has logged on as a given SimCorp Consultant type user.

### 6.5.6 Troubleshooting Database Connectivity Issues

As described in section 5.1 “Installation and Upgrade Considerations”, sessions are using Oracle Instant Client and ODP.NET to connect to the database. The Oracle Instant Client and ODP.NET software is included and embedded with the SimCorp Dimension software. In order to assist in troubleshooting issues where the SimCorp Dimension session cannot connect to the database, the application contains two utilities, OciConnect.exe and odpconnect.exe, which might provide a more precise error message when trying to connect to the database using the embedded software.

At SimCorp Dimension session start-up two database sessions are created, one through the Oracle Instant Client and one through ODP.NET. The two supplied utilities tests connection to the database via each of these interfaces.

To use the tools from a Windows Command Prompt, call OciConnect.exe and odpconnect.exe in the Bin folder, using the database connectivity values as defined in the installations cnf.ini file for whichever is the relevant of the following:

```
username/password@dbconnecthost:dbconnectport/dbconnectservice or
dbconnectsid
```

or

```
username/password@dbname
```

**Example** `\\filsvr\Dimension\Prod\Bin\OciConnect.exe TBY/mypassword@scprod`

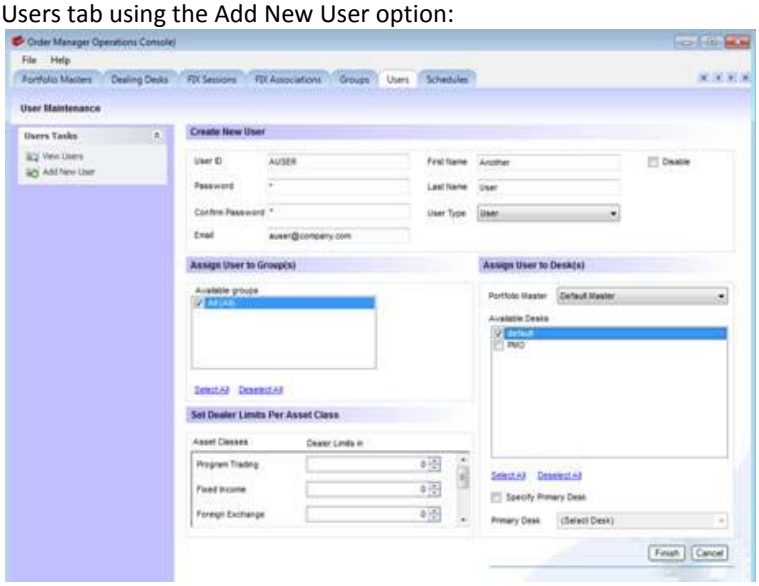
The above example tests the connectivity to the database using the Oracle Instant Client in the installation placed in \\filsvr\Dimension\Prod, connecting to the database identified as `scprod` with user `TBY` and password: `mypassword`.

To test ODP.NET interface replace OciConnect.exe in the above example with odpconnect.exe

Please refer to section 4.2.1.1 “Database Connectivity Parameters” for more information on the Cnf.ini file.

### 6.5.7 Order Manager Users

If using Order Manager it is necessary to add individual users, who will need access to the Order Manager client, into the Order Manager Operations Console. This is done from the Users tab using the Add New User option:



| Note | Note the password does not have to match the password for the Oracle user account but something must be entered. |
|---|---|

## 6.6 Distributed processing

This section contains information on how to start SimCorp Dimension batch jobs and application servers, including running them using the Service Host, and what to do if they will not start.

It also contains information on starting the MUCS as well as moving it to a different server and starting a failover MUCS server.

Please refer to SimCorp Dimension ***Batch Jobs User Manual*** for a detailed description of how to set up and maintain SimCorp Dimension batch jobs.

| Note | It is SimCorp recommendation to use the local installation option for production batch and application servers. The recommendation is due to an increasing number of issues generated by long running processes temporarily losing network connection which the Windows execution environment is not tolerant towards. Constant and uninterrupted network connection is required to ensure stability in long running processes executing from a central installation. Newer versions of Windows appear less tolerant in this regard than Win 2003. |
|---|---|

### 6.6.1 Batch

In order to start a SimCorp Dimension batch job group, `scd.exe` must be called with

```
 –batch=<batch job group>
```

`<batch job group>` is the name of the batch job group defined inside SimCorp Dimension (see online documentation for creating batch jobs and batch job groups).

| Example | `...\Bin\scd.exe –batch=test` |
|---|---|

Please also refer to section 7.1.2 “Batch Job Group”.

#### 6.6.1.1 User

By default a batch job will be executed using the SimCorp Dimension user BATCH defined as user type **Batch user**.

You may define additional users of user type **Batch user** with individual access and allocate these to individual batch job groups.

The user is associated with the batch job session by use of the `–u` parameter.

| Example | `...\Bin\scd.exe –batch=test –u=test/test` |
|---|---|

Please be aware that there is a potential risk to security in the above example as the password is stated in clear text. Please refer to section 6.5.2 “Unattended Logon” for other alternatives of logging Batch type users on.

##### 6.6.1.1.1 Start of Batch Job Groups Authorisation

Using **MAINTENANCE** > **SYSTEM ACCESS** > **General Authorisation** > **Start of Batch Job Groups Authorisation** it is possible to control from where (the machine identification) and by whom (the net identification) a batch job group can be started. It is possible to create both specific batch job group restrictions, which are only valid for one batch job group, and general restrictions.

By default, no entries exist, meaning any batch job group can be started by anyone from any machine.

If an unauthorised start-up of a batch job group is attempted error level 1054 will be returned, error message:

*It is not allowed to start this batch job group using OS user X and/or machine Y.*

#### 6.6.1.2 What if the Batch Job Group Fails to Start?

When executing a batch job group, the system cannot write messages to the screen or wait for user interaction. Any questions needing user interaction will be answered automatically with 'Enter'. If anything unexpected happens during the batch execution, the data is written to the log.

Each time a batch job group is started, an entry is written in the batch history, where the start-time, end-time (if ended), status, and eventual error messages may be reviewed. If a batch job group has failed, this should be the first place to check as the reason can very often be found here. If no entry is logged in the history, the error has occurred in the start-up phase and checking the BATCH.LOG (placed in the installations Log folder) may give an indication of the cause of the error. If no entry can be found in the BATCH.LOG file, the error has occurred in the start-up of scd.exe and in this case the SCD.LOG file may give an indication of the cause of the error.

| **Note** | During the execution of a batch job, SimCorp Dimension writes application specific codes to the batch log. These codes are not the same as the exit codes described in section 6.6.6 "Returning Error Levels". |
|---|---|

Please refer to section 7.3 "Codes in the Batch Log" for a list of batch log codes.

The placement of the batch logs are determined by the **Log file** field for the actual batch job group and the configuration of the file as specified in **DATA** > **REFERENCE DATA** > **Miscellaneous Codes Reference Files**.

The batch history is found in **MAINTENANCE** > **SYSTEM MAINTENANCE > System Manager**

#### 6.6.1.3 Tracing Batch Jobs

It is possible to make a database trace of a batch job. A database trace can be useful in order to troubleshoot bad performing batch jobs.

Define a SimCorp Dimension batch job with **function** "Trace File - Start" and another batch job with **function** "Trace File - Stop", and insert the batch jobs surrounding the job or jobs in the Batch Job Group requiring tracing.

It is possible to choose one of the 4 **Trace level** values:

- `SQL (level 1)`: The SQL statements, their execution plan and row source operation will be included in the trace file.
- `Binds (level 4):` As level 1, but will also include the values of the binds.
- `Waits (level 8):` As level 1, but will also include wait statistics.
- `Binds and waits (level 12`): As level 1, but including the values of the binds and the wait statistics.

If nothing else have been asked for 'Waits (level 8)' should be used.

The trace file will be created in the database UDUMP destination and can be handled like all Oracle 10046 traces, for instance formatted with Oracle utility TKPROF, in accordance with Oracle documentation.

#### 6.6.1.4 Restarting a Batch Job

Using the Command Line options `-ba_continue` and `-ba_failedjobsonly` it is possible only to execute jobs which in the previous execution has failed. Called with option `-ba_continue` the batch job group will continue from where the batch job group crashed. Called with option `-ba_failedjobsonly` batch jobs which failed previously will be executed.

For example having a batch job group with five jobs (JOB1, JOB2, JOB3, JOB4 and JOB5) JOB1 and JOB3 are executed without problems JOB2 failed, and during JOB4 the system crashes. If called with `-ba_continue` the batch job group will continue from JOB4, as the system crashed during the execution of this job, and execute JOB4 and JOB5. If called with `-ba_failedjobsonly`, JOB2, JOB4 and JOB5 will be executed, as JOB2 failed in the previous execution, and the system crashed during the execution of JOB4 and JOB5 was never executed (due to the crash in JOB4). If called with both options, the `-ba_continue` will be ignored.

In **MAINTENANCE** > **BATCH JOBS** > **Batch Monitor** it's possible to see which batch jobs are currently running, and the progress of these.

**Note** If a job before it crashed already have committed some data, or created files, or made other changes these will NOT be reversed before the execution.

**Note** To make these features possible the system has to keep track of the process of the individual jobs, and it's therefore not possible to run more than one instance of the same batch job group at the same time. If a batch job group is already running, a %ERRORLEVEL% 1056 will be returned.

Using the ba_continue parameter will do the same as if the batch job group were edited and jobs which have been executed with success were deactivated (`Active=false`), and then the batch job group were started again.

Using the ba_failedjobsonly will do the same as if the batch job group were edited and jobs which previous failed or hasn't been executed were set as active and the rest deactivated, and then the batch job group were started again.

If an error occurs during the start-up of a batch job group due to the use of ba_continue (either if the batch job group has been changed, or if the previous crash occurred within a parallel section), %ERRORLEVEL% 1057 will be returned.

If an error occurs during the start-up of a batch job group due to the use of ba_failedjobsonly (either if the batch job group has been changed, or if error jobs were a parallel running job), %ERRORLEVEL% 1058 will be returned.

### 6.6.2 Application Servers

Starting SimCorp Dimension servers works the same way as for batch jobs: to start a SimCorp Dimension server call `scd.exe` with `–server=<server>`, where <server> is the name of the server to be executed (see online documentation for creating new servers).

**Example** `...\Bin\scd.exe –server=calcsrv`

#### 6.6.2.1 Terminology

The following terminology is applied to this section:

| | |
|---|---|
| **Host** | The physical unit hosting the server process |
| **Server Process** | The SimCorp Dimension server process hosting the business services |
| **Business Service** | The SimCorp Dimension program performing the calculations |

#### 6.6.2.2 User

By default, server processes are started using the User **SERVER** defined as User type **Server user**. You may define additional users of user type **Server user** and allocate these to individual servers.

The user is associated with the server session by use of the `–u` parameter.

**Example** `...\Bin\scd.exe –server=test –u=test1/test1`

Please be aware that there is a potential risk to security in the above example as the password is stated in clear text. Please refer to section 6.5.2 “Unattended Logon” for other alternatives of logging Server type users on.

When executing a job, that is, calculating or importing data (depending on the server type), the server uses the authorisation of the SimCorp Dimension user ID who initiates the server job. Example: the server process is logged on to the database as the user **SERVER**, but records with `CREUSR/CHGUSR` (record created by/record changed by) will reflect the user who initiated the job. So if user **USR1** submits a calculation, the calculation server process will be logged on the database as SERVER, while `CREUSR` and `CHGUSER` fields on the records generated by the calculation will say **USR1**.

##### 6.6.2.2.1 Start of Servers Authorisation

Using **MAINTENANCE** > **SYSTEM ACCESS** > **General Authorisation** > **Start of Servers Authorisation** it is possible to control from where (the machine identification) and by whom (the net identification) a server can be started. It is possible to create both specific server restrictions, which are only valid for one server, and general restrictions.

By default, no entries exists, meaning any sever can be started by anyone from any machine.

If an unauthorised start-up of a server is attempted error level 1054 will be returned, error message:

*It is not allowed to start this server using OS user X and/or machine Y.*

#### 6.6.2.3 What if the Server Fails to Start?

As with the batch jobs (see 6.6.1.2 “What if the Batch Job Group Fails to Start?“) it is possible to see the status for the last server jobs in. If no entry can be found in **Server History**, the SERVER.LOG (placed in the installations Log folder) file should be inspected, and if no entry here can be found in SERVER.LOG, the SCD.LOG file might reveal the problem. These log files can be found in the installations Log folder.

The server history can be found in **MAINTENANCE > SYSTEM MAINTENANCE**> **System Manager**.

#### 6.6.2.3.1 Insufficient Windows Resources

If an insufficient windows resources error is generated when a message queue or communication server is running, it might help to decrease the **Maximum number of cached forms** (**MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **Miscellaneous Options**, on the **Filter/Message Queue/Data Format Setup** tab). Normally, a cache size around 10 would be fine. If running the message queue server as a Windows Service (also includes running the server as a scheduled task), the program does not have as many Windows resources as if the program was run by a Windows user logged on (it can be a factor three lower), meaning the maximum number of cached forms should be set to around 3.

Another way is to increase Windows resources. This can be done by editing Registry:

- Locate:
  `HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Session Manager\SubSystems`
- Edit the string named Windows and navigate to the parameter SharedSection. They usually appear like this: SharedSection=1024,20480,768 (on 64-bit Windows) the default values are 1024,20480,768.

The second value controls the heap size for interactive desktops. The third value (768) is used to control the heap size for services desktop. If many SimCorp Dimension batch jobs are run by a scheduler or another service based tool, increase this last value. After changing the values, you will be required to restart the Windows host.

These resources are sometimes referred to as the Desktop Heap. Up to Windows XP / 2003, it was possible to download and install a “Desktop Heap Monitor” from Microsoft, but this is not supported by newer Windows platforms. Issues with interactive use are unlikely (with 20480). The issue may appear for non-interactive use (e.g. services). The third value should be changed to the lowest number (using steps of 256) where the problems disappear, for instance 1024 or 1280 (from 768). Setting this too high may cause resource exhaustion elsewhere.

If changing the registry key to obtain more resources for services does not help, SimCorp Dimension should not be operated as a service but instead as an interactive application.

Before changing values in the Registry please ensure to carefully read:

http://support.microsoft.com/default.aspx?scid=kb;EN-US;184802

Using the Local System account for SimCorp Dimension services is not recommended. All services executed under the Local System account with “Allow Service to interact with the Desktop” not selected share the desktop heap of the “Default” desktop in the non-interactive service Windows station. This places a limitation on how many SimCorp Dimension services can be started concurrently, as the heap size (the third value) is a maximum for all services running under the Local System account. Whereas every service process executed under a user account will receive a new desktop in a non-interactive Window station, meaning the heap size is now a maximum pr. service.

For instance, on a 64-bit Windows 2003 server using default settings, the SimCorp Dimension service consumes approx 12.4 % of the desktop heap. If the Local System Account is used, attempting to start an eighth (depending on what else is consuming desktop heap) SimCorp Dimension service will result in a Services message stating that the service could not be started and referring to service-specific error code 12.

#### 6.6.2.4 Real-time Market Data Server

It is possible to receive real time prices from the following external providers: Reuters SSL, Real-Time DDE, Falcon 32-bit, Internet Feed, XML feed and Bloomberg FTP.

##### 6.6.2.4.1 Reuters SSL

There are no built-in software restrictions on the number of simultaneously requested Reuters Identification Codes (RIC) in SimCorp Dimension.

The supported maximum number of simultaneously requested RICs depends on the following parameters:

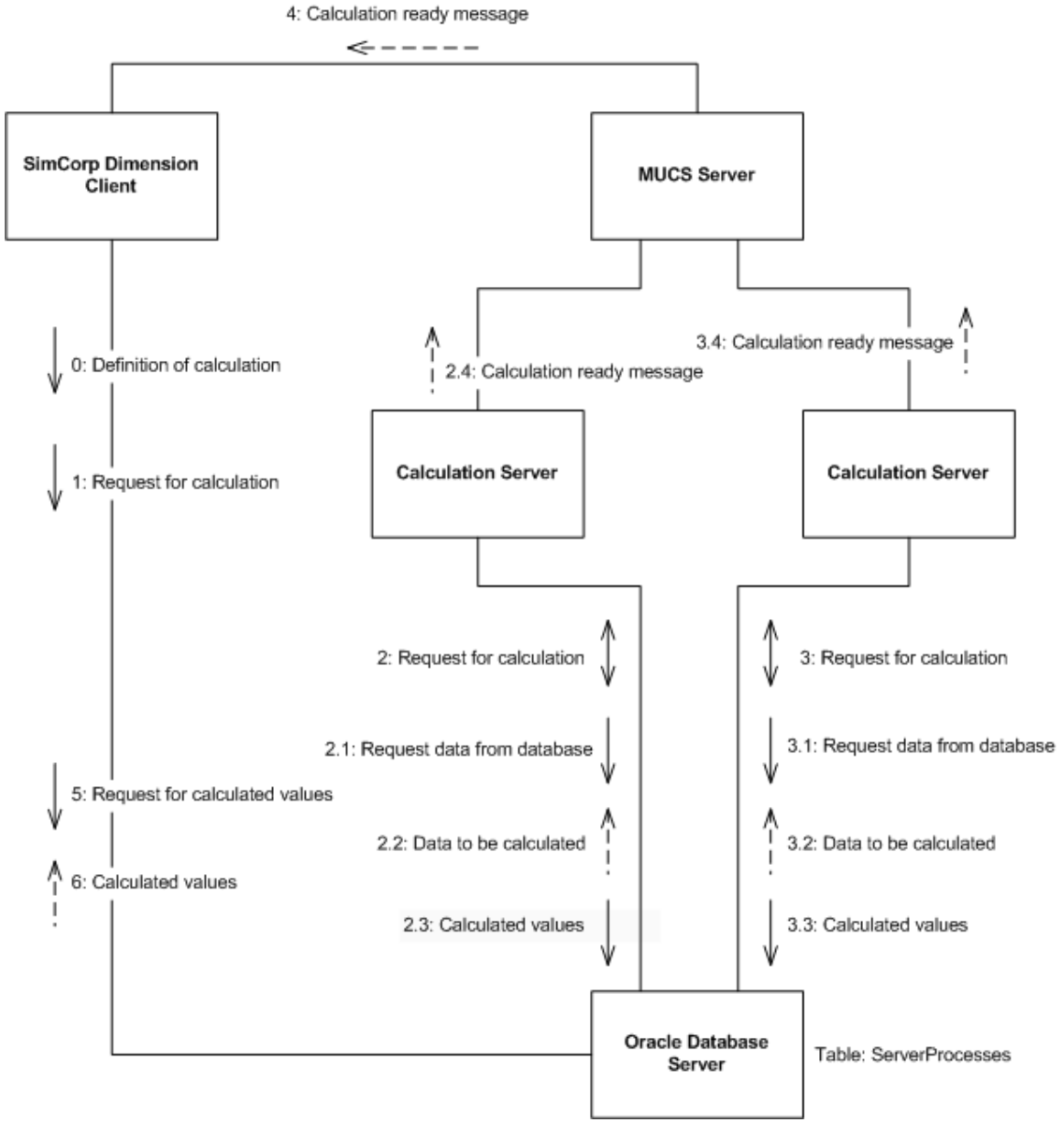
- The Reuters connection
- The IT infrastructure (the network)
- The Hardware running the Market Data Server (CPU and Memory)
- The market activity of the requested RICs
- The server setup (for instance a separate Yield Curve Server)

It is possible to increase the supported number of simultaneously requested RICs by configuration. Especially applying of SimCorp Dimension intervalisation accepting a small delay in the real time update (for example 30 seconds) will increase the amount of maximum of supported simultaneously requested RICs

| | |
|---|---|
| **Note** | If the number of simultaneously requested RICs is high, SimCorp recommends the use of parallel Download real-time market data servers with Use separate real-time connection switched on. |

### 6.6.2.5 Load Balancing Collaboration

Calculation servers in SimCorp Dimension can be set up to run calculations in load balancing mode, thereby dividing a job into smaller parts which are calculated on two or more calculation servers. The following collaboration view shows a simplified example where a calculation is performed using two calculation servers.




| Note | Please note that load balancing has to be available in the SimCorp Dimension installation, and each calculation server has to be defined in the system in **MAINTENANCE** > **SERVER ADMINISTRATION** > **Server Administration**. |
|---|---|

In the above depicted situation two calculation servers are working in load balancing. Each server (when idle) queries a table in the database for new jobs at every polling interval timeout (please refer to section 6.4.3 “Server Polling”), and the following describes the scenario depicted:

**0:** The user has defined the calculation required

**1:** The user executes the calculation and requests it to be calculated using servers and in load balancing mode and the request is entered in a table in the database

**2:** The first calculation server to reach its polling interval timeout, sees the job in the table and starts an initialisation process, dividing the job into n 'batches' which can be calculated individually

**3:** The second calculation server reaches its polling interval timeout, and sees that a job has been initialised and is ready for calculation and picks up a 'batch'

**2.1, 2.2:** The first calculation server fetches the data required in order to calculate its 'batch'

**3.1, 3.2:** The second calculation server fetches the data required in order to calculate its 'batch'

**2.3, 3.3:** As the calculation servers finish their 'batches' the results are stored in the database, and the calculation servers continue repeating step 2.1/3.1 through 2.3/3.3

**2.4, 3.4:** When there are no more 'batches' to be calculated, the servers return a message to the MUCS server, indicating the calculation is complete

**4:** The MUCS server broadcasts a message that the calculation is completed

**5, 6:** The client session, from where the calculation server was initiated, fetches the result from the database and displays it to the user

### 6.6.3 Server as a Windows Service

SimCorp Dimension application servers can be installed to run as a Windows service. Please refer to section 7.13 “Server Types” for a complete list of SimCorp Dimension application servers.

| | |
|---|---|
| **Note** | The interface programs used for connection to Deutsche Börse (scxetra.exe and sceurex.exe) cannot be run as Windows services. |

For more information on the technique behind this functionality, please refer to section 7.15 “Server as Windows Service”.

#### 6.6.3.1 Windows Service Installation

The easiest way to install a SimCorp Dimension application server as a service is to call scd.exe with the parameter `-service=install` on the host where the service should run.

| | |
|---|---|
| **Example** | `\\server\share\production\Bin\scd.exe –service=install` |

This will bring up an installation dialog box.

In order to install the MUCS server as a service:

| | |
|---|---|
| **Example** | `\\server\share\production\Bin\Mucs.exe –service=install` |

This will bring up an installation dialog box. The fields in the Service part of the installation dialog box will be pre-filled, as these are not configurable when installing MUCS as a service (except for **Additional parameters**):

| | |
|---|---|
| **Note** | Please ensure that you use UNC notation (\\fileserver\sharename) as opposed to a mapped drive letter when installing services. Likewise, if Oracle TNS_ADMIN Registry key is used for Oracle TNS_NAMES connectivity, please ensure that a UNC path is used here. |

The following subsections describe the input fields for the **Service Install** window.

### Service

A valid SimCorp Dimension server name must be supplied. Valid server names can be found in **MAINTENANCE** > **SERVER ADMINISTRATION** > **Server Administration**. The fields **Service name**, **Display name** and **Startup parameters** will be automatically filled on the basis of the Server name supplied. The optional field for **Additional parameters** can be used to supply any other start-up parameters needed, such as the SimCorp Dimension user (please refer to section 7.1.1 “scd.exe”, for the list of options).

### Startup type

The available types are the Windows Services startup types:

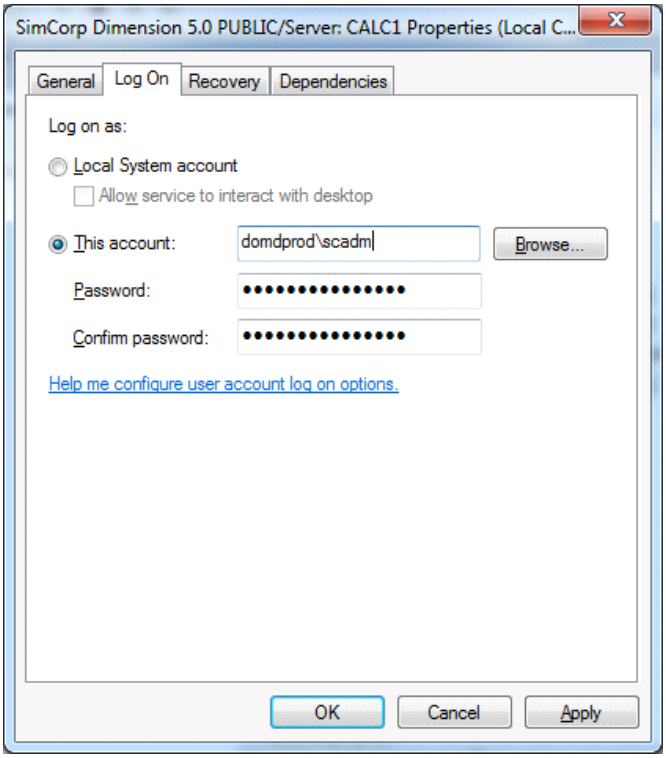
| | |
|---|---|
| **Automatic** | The service is started automatically by the service control manager during system startup |
| **Automatic (Delayed Start)** | Delayed auto-start services are started shortly after the system has started |
| **Manual** | A service started on demand. This can be done by a tool or, for instance, by command line:<br>`net start <SERVICE>` |
| **Disabled** | A service that cannot be started. Attempts to start the service results in an error |

### Log on

A valid Windows account name should be entered. SimCorp Dimension is placed on a network drive. Therefore, the account must have access to this resource. It is not normally possible to use the default account: Local System. The **Account name** should be in the format of `domain name\username` or `username@domain name` depening on the used Active Directory format. In addition, please refer to section 6.6.2.3.1 “Insufficient Windows Resources” for more on why it is not recommended to use the Local System account for SimCorp Dimension services and to section 6.5.2 “Unattended Logon” for details on logon for SimCorp Dimension Server type users.

#### 6.6.3.1.1 Change Parameters

If some of the parameters need to be changed, it can be done by Microsoft Management Console (MMC) Properties. For instance, to change the logon account for a calculation service. In Windows 7 go to Windows **Control Panel** > **System and Security** > **Administrative Tools** > **Services** and choose **Properties** for the service in question (here with an example from a previous version):




#### 6.6.3.1.2 Extended CMD Syntax for Customising Service Name

A command line interface exists for installing SimCorp Dimension servers as services. This allows you to for example create the service with another and customised service name.

The syntax for the `scd.exe` option is as follows:

```
-service="install[,server[,accountname password[,<service>,<additional parameters>,<startup(M|A|ADS|D)>]]]"
```

| Example | `…\Bin\scd.exe –service="install,CALC1,domprod\scadmin pwd,calc1service,,M"` |
|---|---|

The above example creates a service for the SimCorp Dimension server CALC1, with the service name **calc1service**, for manual start-up and logon by account `scadmin` with password `pwd` in domain `domprod`, and no additional parameters have been stated.

The startup parameters is as: M: Manual, A:Automatic, ADS:Automatic(Delayed Start) and D:Disabled.

To create a service for MUCS use the following syntax:

```
-service="install[,mucs[,accountname password[,<service>,<additional parameters>,<startup(M|A|ADS|D)>]]]"
```

| Example | `…\Bin\scd.exe –service="install,mucs,domprod\scadmin pwd,mucsprimary,,M"` |
|---|---|

At present the extended CMD syntax cannot be used for creating a service for a failover MUCS.

Please note the service display name is still generated by SimCorp Dimension in the format: “SimCorp Dimension *version state*/Server: *serverID*”.

#### 6.6.3.2 Uninstall Windows Service

In order to uninstall a service call scd.exe with parameter `-service=uninstall,<name>`, where `<name>` is the name of the service to uninstall.

| Example | `…\Bin\scd.exe –service=uninstall,SCD50PRODCALC1` |
|---|---|

Likewise to uninstall the MUCS service call `MUCS.EXE` with the parameter `–service=uninstall, <name>`

| Example | `…\Bin\Mucs.exe –service=uninstall,SCD50PRODMUCS` |
|---|---|

#### 6.6.3.3 Windows Service Troubleshooting

When running services, no logon script has run for a given account. Therefore, be sure you have a temporary path. The %TEMP% environment variable must be set. Please refer to note in section: 6.6.5 “Starting Batch Jobs or Servers from a Scheduler”.

If you want to change the command line `–type` parameter for a service, remember to change it both in:

`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\<SERVICE>\ImagePath`

and

`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\<SERVICE>\Parameters\Par`

If the SimCorp Dimension service fails to start and receives a timeout error, take a look at the two following registry settings:

`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control`

Type `REG_SZ: WaitToKillServiceTimeout default: 20000` and increase this value to, for instance, `120000` and then reboot

and

`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control`

Type `REG_DWORD: ServicesPipeTimeout default: 30000` and increase this value to, for instance, `120000` and then reboot.

If these values are changed, a parameter in the SimCorp Dimensions configuration file must have at least the same value in seconds, for instance Cnf.ini **[config]** section, parameter `SERVICETIMEOUT=<seconds>`. Default value is 120. Please refer to SimCorp Support for assistance when changing this parameter.

If a newly created SimCorp Dimension service fails to start and Windows reports error 1053:

*The service did not respond to the start or control request in a timely fashion.*

It might be because the service name contains a space. The service name is created from the name of the installation, and if the name (state in Cnf.ini) contains spaces you will receive this error. Guidelines for installation names are given in section 4.2.1.4 “Naming the SimCorp Dimension Installation”.

Please also be aware of the issue stated in 6.6.2.3.1 “Insufficient Windows Resources”.

A good tool for troubleshooting services which will not start is the Windows CMD utility Net. For example use `Net start <service name>` (for instance, `net start`

scd50prodmucs) and note the error message number retuned. Then use the error number in Net helpmsg <error#> (for instance, net helpmsg 2186).

### 6.6.4 Service Host

The **SERVICE HOST** can be executed either from the command line or as a Windows service. Executing the **SERVICE HOST** as Windows service requires, that the service has previously been installed as a Windows service from the command line. This section explains how to get started and execute the **SERVICE HOST**.

Unlike the other SimCorp Dimension server types, the Service Host is executed using its own executable, SimCorp.IMS.Framework.Service.Host.exe, but also found in the Bin folder of the SimCorp Dimension installation.

Like with Scd.exe command line options can be added on the command line after SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE, starting with - , but / can also be used.

**Examples**

```
SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -help

SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE /help
```

All options are preceded by a space:

**Example**

```
SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -install
-server=myServer
```

The commands and options are not case sensitive. A complete list of the options is available in section 7.1.3 “SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE”.

#### 6.6.4.1 Start the Service Host Server from the Command Line

The Service Host is started with the server= option:

**Example**

```
SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -server=COMPLSVC
```

The argument provided for the server= option is the server ID as defined in **Server Administration**.

Executing this command will start up the **SERVICE HOST** with two services: **Compliance engine back end service** and **Compliance engine front end service**. The **SERVICE HOST** is started in interactive mode in the Windows user’s context.

#### 6.6.4.2 Install and start the Service Host Server as a Windows Service

To install a Windows service to start the **SERVICE HOST,** use the -install option:

**Example**

```
SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -install
-server=COMPLSVC
```

This creates a Windows Service which can be managed through the services in Windows Control Panel. The service will have its display name as **SimCorp Dimension #.# Service Host (state) – serverID**, for instance **SimCorp Dimension 5.4 Service Host (PROD) – COMPLSVC**. The service can be modified to have start-up type Automatic. The Windows logon account of the service is determined by the setting in the Windows **Service Control Manager**. By default it is set to NT AUTHORITY\NetworkService, but may be changed manually on the **Log On** tab on the service properties.

In the **SERVICE HOST**, having started the two services exposes a service endpoint for each service. The endpoint address is created somewhat automatically and somewhat from the parameters. From the example with the entry shown in **Server Administration** above,

calling SIMCORP`.IMS.FRAMEWORK.SERVICE.HOST.EXE` with option `-server= COMPLSVC`, will start the **SERVICE HOST** with two services with several default settings.

By default the above examples will log on to the SimCorp Dimension database using the built in server type user **SERVER**. Alternatively the `-user` option can be used to specify another server type user to use for database connectivity. This is the same principle which applies when starting other SimCorp Dimension server types.

**Example**

```
SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -install
-server=COMPLSVC -user=complsvc/pwd
```

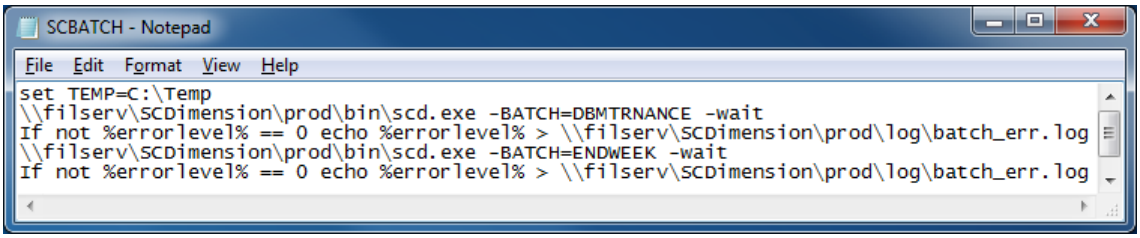
Where **complsvc** is a Server type user defined in SimCorp Dimension with password pwd.

For information on User creation and administration in SimCorp Dimension, please refer to the ***System Access*** User Manual.

### 6.6.5 Starting Batch Jobs or Servers from a Scheduler

A SimCorp Dimension application server or batch job group can be started using an external scheduler capable of executing Windows command scripts.

Create a .bat file containing the commands to start the batch jobs or servers needed to run on the same machine. There is an example below where a .bat file is shown:


SCBATCH - Notepad
File Edit Format View Help
set TEMP=C:\Temp
\\filserv\SCDimension\prod\bin\scd.exe -BATCH=DBMTRNANCE -wait
If not %errorlevel% == 0 echo %errorlevel% > \\filserv\SCDimension\prod\log\batch_err.log
\\filserv\SCDimension\prod\bin\scd.exe -BATCH=ENDWEEK -wait
If not %errorlevel% == 0 echo %errorlevel% > \\filserv\SCDimension\prod\log\batch_err.log

**Note** To overcome changes in logon context, the bat file must set the environment variable %TEMP% and use UNC paths rather than mapped up drives. Likewise, the Oracle registry parameter TNS_ADMIN must point to a UNC path rather than a mapped drive. The Windows user account used for the scheduling program must have the appropriate rights to the SimCorp Dimension installation.

**Note** If one ".bat" file starts up more batch job groups, you need to decide if all groups should run simultaneously or consecutively. In the latter case, then "-wait" must be added to the command (see example scbatch.bat above). If they were to run simultaneously the –wait parameter should (in the example) be exchanged for the "–type" parameter. Please refer to section 7.1.1 "scd.exe". .

**Note** If using the Windows Task Scheduler, be sure to check known issue 8.8.12 "Using Windows Task Scheduler to run Batch Jobs."

Finally, add a job to the scheduler, which executes the bat file at the required time, for instance, every weekday at 01:30.

### 6.6.6 Returning Error Levels / Exit Codes

If the scheduling tool uses error level, SimCorp Dimension must be called with a wait parameter (see example).

**Example** `...\production\Bin\scd.exe –batch=test -wait`

If called in this way SimCorp Dimension returns an error level after the batch job group is finished or, for a server, when the server is shut down. The error level originates either from the main processes (scd.exe, mucs.exe and srvstat.exe) or from the application processes (other SimCorp Dimension executables or DLL's). The main processes return error levels below 1000. Other processes return error levels above 1000.

**Note** Testing on the error level code in a CMD script only makes sense if the scd.exe option –wait is used. If the –wait option is not used, the error level reported back is 259, regardless of the state of the job.

Please refer to section 7.2 “Error Levels / Exit Codes” for a full list of error levels.

### 6.6.7 MUCS

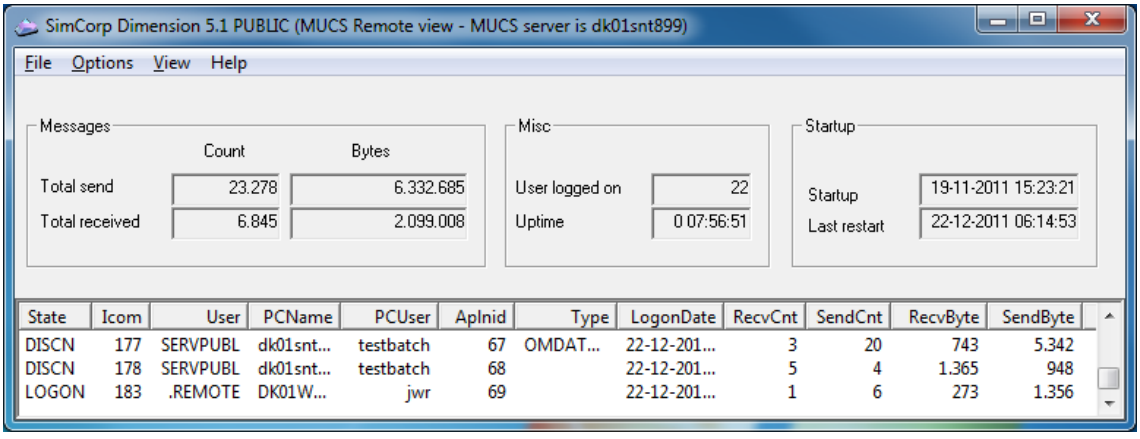
The MUCS is a central functionality in SimCorp Dimension and must always be running. At any time only one can and must be running, but it is possible to set up a failover MUCS server and thereby improve the system availability.

#### 6.6.7.1 Running MUCS

In order to start the MUCS server, run the following command from the dedicated host:

`…\Bin\Mucs.exe`

The MUCS window, as shown below, appears and it is possible to see various user connection statistics, as the users enter SimCorp Dimension.


SimCorp Dimension 5.1 PUBLIC (MUCS Remote view - MUCS server is dk01snt899)
File Options View Help
Messages
Count Bytes
Total send 23.278 6.332.685
Total received 6.845 2.099.008
Misc
User logged on 22
Uptime 0 07:56:51
Startup
Startup 19-11-2011 15:23:21
Last restart 22-12-2011 06:14:53
State Icom User PCName PCUser ApInid Type LogonDate RecvCnt SendCnt RecvByte SendByte
DISCN 177 SERVPUBL dk01snt... testbatch 67 OMDAT... 22-12-201... 3 20 743 5.342
DISCN 178 SERVPUBL dk01snt... testbatch 68 22-12-201... 5 4 1.365 948
LOGON 183 .REMOTE DK01W... jwr 69 22-12-201... 1 6 273 1.356

**Note** Sessions may need to reconnect to SimCorp Dimension if the MUCS server is stopped or restarted, but this will be done automatically under normal conditions.

In order to view the MUCS window on another host than the one where it is running or if MUCS is running as a service, the following switch can be used:

`…\Bin\Mucs.exe –remote`

If MUCS is installed on a cluster server and the logical name stated in Cnf.ini for the `Mucs=` entry differs from the physical host name, MUCS must be started with the `nopccheck` option:

```
…\Bin\Mucs.exe –nopccheck.
```

#### 6.6.7.2 Running MUCS as a Service

The MUCS server can be run as a Windows service and this is the recommended practice. After having verified that the MUCS server can start on the dedicated host, please refer to section 7.15 “Server as Windows Service” for information on how this works.

In order to view the MUCS window, when MUCS is running as a service, use the –remote switch as described above.

#### 6.6.7.3 Starting a Failover MUCS

To start the failover MUCS process run Mucs.exe on the host specified by the Mucsfailover parameter.

For example if `…\Data\Cnf.ini` contains the following:

```
Mucs=SRV01,5603
Mucsfailover=SRV02,5660
Mucsfailoveremail=jbs@afirm.com
```

The MUCS process started on SRV01 will act as primary MUCS, and the one started on SRV02 as secondary, passively monitoring the primary MUCS. If a failover occurs the Windows account used for running the secondary MUCS process will send an email to the account jbs@afirm.com, notifying that a MUCS failover has occurred.

The failover is transparent for SimCorp Dimension sessions. There can be a short period where a SimCorp Dimension session appears to hang, before finding the failover MUCS, now active.

| **Note** | It is not possible to have the failover MUCS running on the same host as the primary MUCS. Mucs=SRV01 with Mucsfailover=SRV01 is therefore not allowed. |
|---|---|

The failover MUCS process can run as a service, like the primary MUCS. Please refer to section 6.6.7.2 “Running MUCS as a Service”.

From a command line it is possible to ping the primary MUCS server in this way:

```
…\Bin\scd.exe –ping
```

or

```
…\Bin\scd.exe –pingquiet
```

This will make a temporary connection and logon to the primary MUCS server. Test the return value (ERRORLEVEL) for the following codes meaning:

| ERRORLEVEL | Meaning |
|---|---|
| 0 | Ping OK |
| 11 | A connection or communication to MUCS server failed |
| 13 | Timed Out |

A detailed description of all scd.exe return values is given in section 6.6.6 “Returning Error Levels”.

The ping utility makes it possible to create scripts that take appropriate actions on failure or the utility could be used from third party software monitoring sessions.

It is also possible to ping the secondary MUCS server. This is done with: …\Bin\scd.exe –ping2. The ERRORLEVEL returned is as described in the table above.

The secondary MUCS window can be viewed using

```
…\Bin\Mucs.exe –remote2
```

Configuration of host and/or port for secondary MUCS is done through **System Environment Configuration**. Alternatively

```
…\Bin\Mucs.exe –install2
```

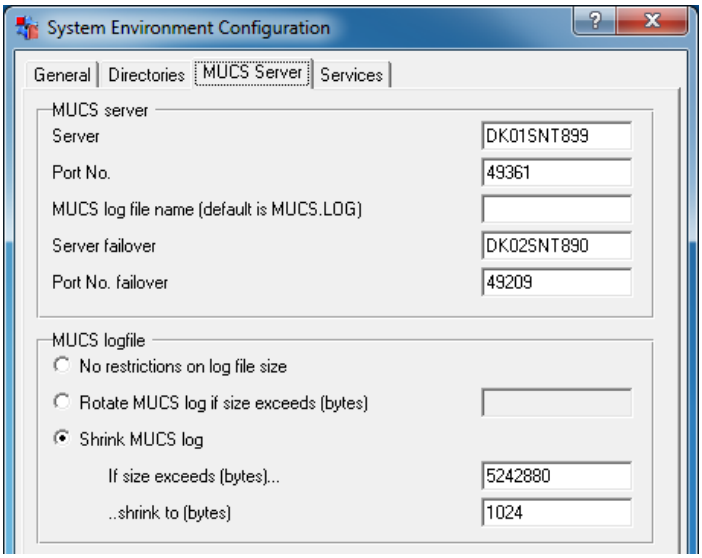
can be run on the host where the secondary MUCS is to run. Entering or changing these parameters results in changes to the Cnf.ini file, and must therefore be performed by a user with appropriate Windows privileges.

Please refer to section 4.2.2.1 “MUCS Failover Configuration” for information on how to configure the failover MUCS.

#### 6.6.7.4 Changing the MUCS Server

If the server that is hosting MUCS needs to be removed from the network, for instance for maintenance, a new machine must be dedicated and SimCorp Dimension changed beforehand to reflect the change of computer name and port. After the MUCS server has been shut down on the old host, it can be started on the new host.

The **System Environment Configuration** window shows the **Server** name and **Port No.** number of the host to be used for the **MUCS** server. Before an alternative **MUCS** server is started on another host, the **Server** name and **Port No.** of the new host must be changed in this window. Alternatively, the command `Mucs.exe –install` can be run on the new host.




If **Server failover** has been defined the primary MUCS can be taken out of service without requiring changes to **System Environment Configuration**. For more information on MUCS failover please refer to section 4.2.2.1 “MUCS Failover Configuration”.

#### 6.6.7.5 Error Handling

If the server hosting MUCS has crashed, it will not be possible to connect to SimCorp Dimension in order to change the configuration. In this case, the file Cnf.ini can be edited in **Windows Notepad**. In the **[config]** section of the Cnf.ini file the following entry should be altered:

```
Mucs=<COMPUTERNAME>, <TCP/IP port>
```

This alteration should reflect the computer name and port of an alternative server. Thereafter, the MUCS server can be started on this host.

Please refer to section 4.2.1 “Configuration File” for more details on editing SimCorp Dimension configuration parameters.

If a SimCorp Dimension session exits with an error code of 11 (“A connection or communication to MUCS server failed”), it is possible for debug purposes to adjust the timeout time.

Add the following parameter to your target line in the shortcut starting SimCorp Dimension:

```
-!MUCSConnectTimeout=<timeout in seconds>
```

The default value is 60 seconds. An attempt to connect will be tried 3 times, meaning a total timeout of 180 seconds if a session cannot get in contact with the MUCS server. The normal connect time (to MUCS) should be less than a second. If increasing the timeout value helps, the environment network etc. should be investigated.

**Note** See also section 3.1.11 “Network Communication” for network setup recommendations.

**Note** The timeout value should never be permanently changed.

Please refer to section 6.6.6 “Returning Error Levels” for more details on SimCorp Dimension exit codes or to section 7.2 “Error Levels / Exit Codes” for a full list of error levels.

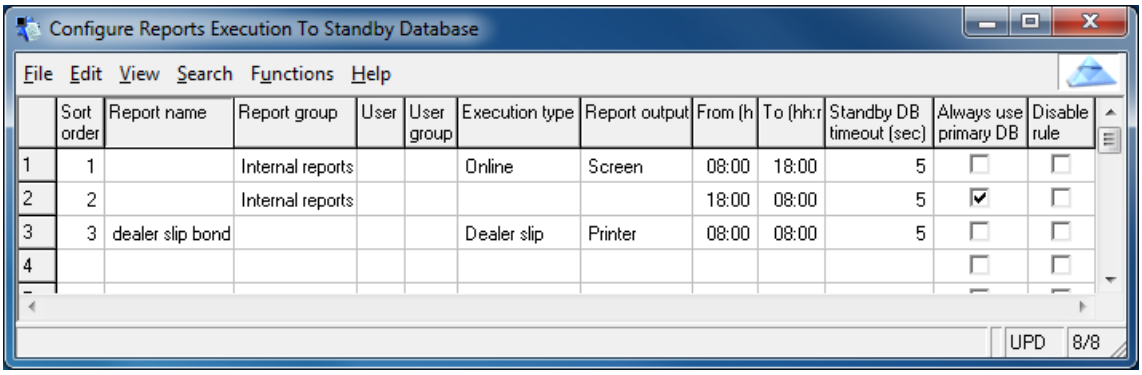
## 6.7 Reporting

SimCorp Dimension has a number of reporting facilities which are described in other manuals. This section supplements with topics for the system administrator to be aware of.

Please in addition refer to the SimCorp Dimension ***Reporting*** and ***Report Book Manager*** User Manuals as well as the SimCorp Dimension ***Data Extractor*** User Manual for related topics.

### 6.7.1 Oracle Active Data Guard

It is possible to execute reports on a standby database using Oracle Active Data Guard (ADG) to offload the report execution from the primary database. Specify the report to be executed on the standby database in the **MAINTENANCE** > **REPORTS** > **Configure Reports Execution to Standby Database** task:



# 7 Reference Information

While the other chapters in this manual are focused on tasks to perform as well as procedures and advices to use when performing them, this chapter rather has its focus on listings and background information.

## 7.1 Command Line Options

This section holds lists of command line options/parameters to use with SimCorp Dimension executable files.

Either `-` or `/` (dash or slash) can be placed in front of a parameter. Some parameters exist in a full length version as well as an abbreviated version. For the ease of description, only `-` (dash) is used in the following.

### 7.1.1 scd.exe

The SimCorp Dimension executable can be started with a variety of start-up parameters. This section explains the most commonly used options.

| Option | Effect |
|---|---|
| `-BATCH={BatchGroup}` | Run a predefined batch job group |
| `-BLOCKLOGON=ON\|OFF\|HHMM[,<text>]` | To secure no other users can start SimCorp Dimension during maintenance it is possible to block logon.<br>`ON`=Block further logon<br>`OFF`=Unblock blocking<br>`HHMM`=Block further logon until HHMM (database server time)<br>`<text>`= An optional reason text can be specified (max length: xxxx).<br>An example:<br>`..\bin\SCD.EXE -TYPE=<type> -BLOCKLOGON=ON, "Patching the installation" -WAIT -U=<patchusr>/password` |
| `-CUD` | Capture unknown dialog boxes and write contents to SCD.LOG |
| `-DEADDETECT=[log][,show][,kill]` | Does not start SimCorp Dimension; instead it performs a cleanup only.<br>Default: log |
| `-DEADRESPONSETIME=<minutes>` | To be used together with `-server=<Server ID>, -wait` and `-status[ex]` to indicate a timeout period before the server is declared "Not responding". If the system has not received a status from the server in the last <minutes> %ERRORLEVEL% <> 0 will be returned and written as an exit code in SCD.LOG |

| Option | Effect |
|---|---|
| `-JOB=EMAILPATCHLEVEL` | Run the **Transfer Patch Information to SimCorp** task from the Command line. Especially to be used when copying data from one installation to another after having run `-JOB=SYNCDBVERS` |
| `-JOB=SYNCDBUSERS` | Creates all users from SimCorp Dimension in the database if they do not already exist and grants the appropriate Oracle privileges to the users. Especially to be used when copying data from one installation to another after having run. Example: `-JOB=SYNCDBVERS`<br>If default password is used in the installation. `-!defaultpwd=<Xyz1>` needs to be added to the command line. |
| `-JOB=SYNCDBVERS` | Run the **Synchronise Database Version Information** task from the Command line. Especially to be used when copying data from one installation to another |
| `-JOB=VERDBPRIVS` | For support purpose it is possible to check if the granted Oracle privileges are correct. Run the `-JOB=VERDBPRIVS –datpwd=<datpwd>` A pop will appear where you can choose which owners/role/objects privileges to check. You need to state a Data base Administrator password with proper rights (The same rights as an upgrade user). It is possible to add missing and/or revoke redundant privileges using this job. |
| `-KEYBLANG=<keybfile>` | APL keyboard file |
| `-LANG=de\|en\|fr` | If applicable, the installation can be started in another language than default; for example start an English version of a German installation |
| `-LOWBANDWIDTH` | Do not transfer heavy graphic to Portal (especially for use on Citrix/Terminal server) |
| `-SCDMERGELOGDIR=<log directory>` | Creates one single file MergedScd<date>.log which contains the merged contents of all the scd__<machineID>.log files located in the directory specified in <log directory> |

| Option | Effect |
|---|---|
| `-NOCUD` | Disable capture of unknown dialog boxes |
| `-NOLOCALCHECK` | Start from central installation even if local installation exists.<br>Should not be used with normal clients, only when it is necessary at, for instance, **Patch Apply** |
| `-NP` | Do not start the portal process (to be used in connection with the `-JOB` options) |
| `-P` | Start SimCorp Dimension in programmer mode. This option is used by SimCorp support staff for debug purposes. The option requires knowledge of an internally generated keyword (“password of the week”) and can therefore only be utilised by SimCorp staff |
| `-SERVER=<Server ID>` | Act as the defined SimCorp Dimension server |
| `-SERVICE=INSTALL` | Show service installation dialog box. In addition please refer to section 6.6.3.1.2 “Extended CMD Syntax for Customising Service Name” |
| `-SERVICE=UNINSTALL,<name>` | Uninstall service <name> |
| `-SHUTDOWN` | Disconnects all sessions.<br>All sessions will be notified to shut down. If they have not shut down before the default number of seconds, then they will be forced shut down. The default number of seconds is 60, but for batch jobs and servers it is 360. |

| Option | Effect |
|---|---|
| `-SHUTDOWN=<max seconds>` | All sessions will be notified to shut down within the specified maximum number of seconds. Batch jobs and servers will be disconnected within a number of seconds later than that, as specified in AdditionalShutdownTimeout (default is 300 seconds).<br>Max seconds must be surrounded by squared brackets<br>Example:<br>`-SHUTDOWN=[120]`<br>Just writing `120` will not work. Specifying `[0]` will disconnect all users, batch jobs and servers immediately without the latency.<br>Please also refer to section 4.2.1.9 “Shutdownbyuser and Shutdownfrompc” |
| `-SHUTDOWN=<user>` | Shuts down all sessions opened by the specified user. Example:<br>`-shutdown=XXX`<br>All sessions opened by the specified user will be notified to shut down. If they have not shut down before the default number of seconds, then they will be forced shut down. The default number of seconds is 60, but for batch jobs and servers it is 360. |
| `-STATUS[EX]` | When used together with `–server=<Server ID> -wait`, STATUS for <Server ID> will return %ERRORLEVEL% (and as exit code in SCD.LOG) indicating whether the server is available or not.<br>`-STATUSEX` will return detailed status for the server, such as idle, executing etc. Please refer to section 6.6.6 “Returning Error Levels” for more details |

| Option | Effect |
|---|---|
| `-TYPE=[*]<string>` | Extension to state. Must be used when starting more than one instance of SimCorp Dimension on the same workstation/server. If using `*`, a unique type is created automatically for each instance.<br>Please be careful when using the *, as a setup that creates many unique types could lead to reduced performance due to many entries in the Windows Registry. |
| `-U[SER]=[*]<scduserid>` | Log on using SimCorp Dimension User-id ( or `*` to use Computer logon user) |
| `-WAIT` | Do not exit to the Windows environment until the application exits and return an error level code to the Windows environment. Especially used when calling scd.exe as part of Command Language scripts |
| `-WSSIZE=<size in kb>` | Overwrite default WS size (same as `-*MAXWS`). Please note if WSSIZE is defined as a Windows environment variable, this option cannot be used. In that case please use<br>`-*MAXWS=<size in kb>` instead |
| `-!DBG_DCFDUMP=1` | A lighter (smaller) version of the below described dump of the workspace. The file is saved in the SimCorp Dimension DUMP folder when an error is logged. The name of the file is "SimCorp Dimension VERS STATE Incident NUMBER.dcf" where:<br>VERS is the SimCorp Dimension version,<br>STATE is the state of the installation, for instance PROD<br>NUMBER is the incident number.<br>This option is by default set on, when the "dws" file option is disabled (`-!DBG_WSDUMP=0`) |

| Option | Effect |
|---|---|
| `-!DBG_WSDUMP=1` | A dump of the complete workspace is saved in the SimCorp Dimension DUMP folder when an error is logged. The name of the file is "SimCorp Dimension VERS STATE Incident NUMBER.dws" where:<br>VERS is the SimCorp Dimension version,<br>STATE is the state of the installation, for instance PROD<br>NUMBER is the incident number<br>To disable the option set `-!DBG_WSDUMP=0` |
| `-!defaultpwd=<Xyz1>` | Used as additional parameter to SYNCDBUSERS<br>Example:<br>`scd.exe -np -job=SYNCDBUSERS -datpwd=<SCDATPW> -wait -!defaultpwd=<Xyz1>` |
| `-!forcestart=1` | Enforces the start of the specified SimCorp Dimension server, even if that server is currently registered as running.<br>• Cannot be used with the `server=*` option.<br>• Will not prompt the user to confirm.<br>Example:<br>`scd.exe -server=CALC_SRV1 -!forcestart=1` |
| `-!forcestop=1` | Changes the status of the specified SimCorp Dimension server to **Ended**.<br>• Can be used with the `server=*` option.<br>• Will prompt the user to confirm.<br>Examples on its use can be found in section 6.1.1 "Copying Data". |

| | |
|---|---|
| **Note** | Please note that all other scd.exe start-up options should only be used when specifically advised by SimCorp. |

Please be aware when running the `-JOB=` options the Oracle password for the installation data owner must be provided:

| | |
|---|---|
| **Example** | `...\Bin\scd.exe -np -job=syncdbusers -datpwd=<SCDAT Password> -wait` |

If an error occurs when using the `-job=` options, troubleshooting might be aided by checking the file `…\Log\cmdjob.log`.

### 7.1.2 Batch Job Group

To control a batch job group, extra scd.exe command line parameter options exist. These options can only be used in combination with

```
-batch=<batch job group>
```

| Option | Use the option in order to: |
|---|---|
| `-ba_extref` | Can only be used together with the `-ba_queue` option. This can be used to add an external identification to a job which later can be used to query the state of a job (BATCHQUEUE.EXTREF). The field is a character field with a length of 200 characters |
| `-ba_continue` | Continue a failed batch job group, starting with the batch job running at the time of failure. Please refer to section 6.6.1.4 “Restarting a Batch Job” for more information |
| `-ba_date` | Specify for which date the job should run.<br>Example:<br>`-ba_date=20081224`, to run the job as if it was Christmas Eve 2008. (Please note using this option takes precedence over system configurations otherwise set) |
| `-ba_endfile` | Specify the name of the end file. Note: This parameter is only relevant if the check box **Create file BATCH_<batchgroup>.END when job ends** at the **Batch** tab in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **Batch Options** is selected.<br>Example:<br>`-ba_endfile=c:\temp\BATCH_group1.end` |
| `-ba_failedjobsonly` | Rerun for only failed and not-yet-run batch jobs in a group. Please refer to section 6.6.1.4 “Restarting a Batch Job” for more information |
| `-ba_logfile` | Specify the name of the log file. If specified, the reference file attached to the batch job group will be ignored.<br>Example:<br>`-ba_logfile=c:\temp\logfile.txt` |
| `-ba_nostat` | If used the system will NOT keep track of the status of the batch job group (as before version 4.4), and it will be possible to start more instances of the same batch job group. By using the ba_nostat the job will not register the current process, meaning it will NOT be possible to use the ba_continue and ba_failedjobsonly options, furthermore the progress of the job will NOT be shown in the batch monitor. |
| `-ba_parm` | If enabled it's via this parameter possible to change a setting for a batch parameter.<br>Example:<br>`-ba_parm= "sort1;parm1=STP;parm2=today;sort3; key1=LIMITCH/15"`<br>Will for job with sort=1 change parameter 1 to STP and parameter 2 to today, and for the job with sort=3 the key value 1 will be changed to LIMITCH/15. |

| Option | Use the option in order to: |
|---|---|
| `-ba_parmfile` | Can be used instead of ba_parm. It takes an xml parameter file as argument.<br>Example:<br>`-ba_parmfile=c:\batchjobs\parmfile1.xml`<br>Where the file layout is:<br>`<rec>`<br>`  <sort1>`<br>`  <parm1>STP</parm1>`<br>`  <parm2>today</parm2>`<br>`  </sort1>`<br>`  <sort3>`<br>`  <key1> LIMITCH / 15</key1>`<br>`  </sort3>`<br>`</rec>`<br>Also accepted is other xml syntax such as:<br>• Declaration tag (`<?xml version="1.0" encoding="ISO-8859-1"?>`)<br>• Root nodes named 'rec' 'Rec' 'Parameters' or 'parameters'<br>• Empty nodes as `<sort20/>` similar to `<sort20></sort20>`<br>• Character entities as `< > &amp, 	`<br>• Case insensitive tag names is the complete xml structure |
| `-ba_priority` | Together with the `-ba_queue` this can be used to specify in which order the batch server should process the jobs in the queue. Legal values: Low/Medium/High Example:<br>`-BA_PRIORITY= medium` |
| `-ba_queue` | Specify to which batch queue to add the job. If used, the batch job will not be executed by this command line but instead added to the batch queue. The actual execution of the job will then be done by a batch server. For further information see 7.13.2 "Batch Server" |
| `-ba_waitto` | Can only be used together with the `-ba_queue` option. Use to specify when the batch server at the earliest must process a job.<br>Example:<br>`-ba_waitto=20111231`, the job will not be executed before the 31st of December 2011<br>`-ba_waitto=201112312000`, the job will not be executed before 20:00 the 31st of December 2011 |

### 7.1.3 SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE

The SimCorp Dimension service host executable can be started with a variety of start-up parameters. This section explains the most commonly used options.

| Command | Description |
|---|---|
| `-server=` | Specifies the server to be executed.<br>Example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -server=myServer` |
| `-install` | Installs the server as Windows service.<br>Example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -install -server=myServer` |
| `-uninstall` | Uninstalls the server as Windows service.<br>Example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -uninstall -server=myServer` |
| `-port=` | TCP port number to listen for incoming connections (if applicable).<br>Example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -server=myServer -port=1234` |
| `-type=` | Identifier of the host instance (reflected in the endpoint adresses of the service endpoints).<br>Example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -server=myServer -type=42`<br>Example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -server=myServer -type=*`<br>This (`-type=*`) is a special case, where type is assigned a timestamp generated by the computer. |
| `-u[ser]` | User name and optional password used for database logon (user[/password])<br>Example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -server=myServer -user=SvrUser/password` |
| `-h[elp]`<br>or<br>`-?` | Show help.<br>Example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -?` |
| `-verbose` | Shows additional information in the console.<br>Example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -server=myServer -verbose` |
| `-quiet` | Disables console output of general purpose information. It shows error messages.<br>Example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -server=myServer –quiet` |

| Command | Description |
|---|---|
| `-installname=` or `-in=` | Used together with `-install` and `-uninstall` to assign a custom service name which will appear on the property pages of the Windows Service Control Manager.<br>Install example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -server=myServer -install -installname=myCustomName`<br>Uninstall example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -server=myServer -uninstall -installname=myCustomName` |
| `-displayname=` or `-dn=` | Used together with `-install` to assign a custom service display name which will appear in the list over service in the Windows Service Control Manager.<br>Example:<br>`SIMCORP.IMS.FRAMEWORK.SERVICE.HOST.EXE -server=myServer -install -displayname=myCustomDisplayName` |

## 7.2 Error Levels / Exit Codes

As described in section 6.6.6 “Returning Error Levels / Exit Codes” it is possible through the use of the –wait parameter to get an error level in return from SimCorp Dimension (scd.exe). The list below shows error levels:

| Error level | Description | Logged in |
|---|---|---|
| 0 | OK | RSE |
| 1 | Forced logoff | RSE |
| 2 | Abnormal logoff (the APL process has disappeared) | RSE |
| 3 | Restart in progress | RSE |
| 4 | Internal scd.exe program error or Windows environment | R(S)(E) |
| 5 | SimCorp Dimension already started | RS |
| 6 | Password of the week failed | RS |
| 7 | Interval logoff | RSE |
| 9 | MUCS installed | R |
| 10 | A SimCorp Dimension is running under another login session ID | R |
| 11 | A connection or communication to MUCS server failed | RSE |
| 12 | Failed before start of APL | RSE |
| 13 | Ping timeout | R |
| 14 | Error in parameter | R |
| 15 | Local installation is made | RS |
| 16 | Trying to start local installation when central installation exists | RS |

| Error level | Description | Logged in |
|---|---|---|
| 17 | Windows is shutting down or Windows user logging off | (S)(E) |
| 18 | APL interpreter has terminated with syserror 999 | RSE |
| 19 | Attempt to write to APL session | RSE |
| 20 | The SCUxxxx.exe process has disappeared | RSE |
| 21 | .NET framework not properly installed | RS |
| 22 | Insufficient memory | RS |
| 23 | Captured unknown dialog box | RSE |
| 24 | Could not add to batch queue | RSE |
| 25 | Could not open SCD.LOG for write (only applicable for SimCorp Dimension servers and batch jobs) | R(E) |
| 26 | Executing of setup.exe failed | RSE |
| 30 | Server status: Idle | RS |
| 31 | Server status: Execute | RS |
| 32 | Server status: Ended | RS |
| 33 | Server status: Unknown to MUCS | RS |
| 34 | Server status: Undefined | RS |
| 35 | Server status: No response | RS |
| 36 | Server status: Not running | RS |
| 37 | BLOCKLOGON is called without user context | RSE |
| 99 | Miscellaneous | R(S)(E) |
| 128 | Unable to create process. See Windows knowledge Base ID 184802 for further information | R |
| 259 | Main process started correct | R |
| 1000 | Down for maintenance | RSE |
| 1001 | Automatic logoff | RSE |
| 1002 | Shutdown | RSE |
| 1003 | Connection to database lost | RSE |
| 1004 | Database error | RSE |
| 1005 | Program error | RSE |
| 1006 | Unable to initialise | RSE |
| 1010 | Unknown user | RSE |
| 1011 | Wrong password | RSE |
| 1012 | User suspended | RSE |
| 1013 | Logon error | RSE |
| 1014 | Password expired | RSE |

| Error level | Description | Logged in |
|---|---|---|
| 1015 | Database authorisation error | RSE |
| 1016 | Database connect error | RSE |
| 1017 | Database not connected | RSE |
| 1018 | User locked | RSE |
| 1020 | Attempt to run 'init' in a local installation | RSE |
| 1050 | Setup error | RSE |
| 1051 | Data error | RSE |
| 1052 | Unknown server | RSE |
| 1053 | Unknown batch job group | RSE |
| 1054 | Authorisation error | RSE |
| 1055 | Job execution on server failed | RSE |
| 1056 | Job is already running | RSE |
| 1057 | Batch job cannot be started with option ba_continue | RSE |
| 1058 | Batch job cannot be started with option ba_failedjobsonly | RSE |
| 1059 | Database identification do not match the one registered | RSE |
| 1060 | File handle error | RSE |
| 1061 | Command line error | RSE |
| 1062 | One or more jobs failed | RSE |
| 1099 | Miscellaneous | RSE |

The column "Logged in" indicates where the error level is logged:

- R = logged as Windows environment variable ERRORLEVEL and can be obtained using Windows Command Language variable %ERRORLEVEL%.
- S = logged in SCD.LOG.
- E = logged in Windows Event log, if this feature is enabled in **MAINTENANCE** > **SYSTEM MAINTENANCE** > **System Options** > **System Environment Configurations**.
- () indicates that the logging will in some instances not be possible, if the error occurs in an early stage of the scd.exe initialisation.

**Note** During the execution of a batch job, SimCorp Dimension writes application specific codes to a batch log. These codes are not the same as the error level codes given above. A description of the batch codes can be found in section 7.3 "Codes in the Batch Log".

The error level is only valid when running SimCorp Dimension batch or server (command line –BATCH or –SERVER). When running interactive with the portal open, the error level is undefined.

The following two exit codes, which are Windows system generated, may also be good to know:

- 1073741818 (0xc0000006) EXCEPTION_IN_PAGE_ERROR. This exit code might occur if a network connection is lost while running SimCorp Dimension in Central Network Installation mode. See http://msdn.microsoft.com/en-us/library/ms679356.aspx
- 1073741811 (0xc000000D) Unknown software exception. This exit code might occur if an unknown software exception happens.

SCD error levels are only returned if SCD could be initialised. In other cases Microsoft messages are returned. The meaning can be retrieved by typing:

`net helpmsg #` (for instance, `net helpmsg 103`)

on the command line.

Suggested further reading:

- Section 4.1.2.3 “Windows Error Reporting – WER” For information on how to get a crash dump
- Section 6.6.3.3 “Windows Service Troubleshooting” for information on how to utilise error levels in a trouble shooting situation
- section 3.1.11 “Network Communication” for network setup recommendations

## 7.3 Codes in the Batch Log

Messages written to the batch log are classified by codes. The codes are written in two columns, one for message codes and one for result codes. The table below describes the meaning of message codes in the first column of the batch log:

| Message code | Description |
|---|---|
| 00 | Miscellaneous |
| 01 | Parameter |
| 02 | Start batch job |
| 03 | End batch job |
| 04 | Batch job error |
| 05 | Open file |
| 06 | Number of records |
| 07 | Close file |
| 08 | No data found |
| 09 | Batch job stopped |
| 10 | Message box |
| 11 | Warning |
| 20 | Result from Reconciliation of Custodies |
| 21 | Error records from filter |
| 22 | Number of errors during import |
| 23 | Server status changed |
| 24 | Error records from portfolio calculation |
| 25 | Error records from back office create |
| 26 | Error records from direct data import |

| Message code | Description |
|---|---|
| 27 | Error records from performance calculation |
| 28 | Error records from figure calculation |
| 29 | Error records from G/L Events |
| 30 | Queued for parallel execution |
| 31 | Batch job running |
| 32 | Start batch group |
| 33 | End batch group |
| 90 | Additional info |
| 95 | Status |
| 98 | Separator line |
| 99 | Temp |

The table below describes some of the most common result codes in the second column of the batch log:

| Result code | Description |
|---|---|
| 00 | Everything is ok |
| 01 | The program has stopped |
| 02,03,04 | Field error (syntax/mandatory/…) |
| 88 | File error |
| 98 | Program error |
| 99 | Database error |

## 7.4 Configuration File Parameter Overview

The following table lists Cnf.ini parameters that can be seen in the cnf.ini file:

| Parameter | Cnf.ini section | Description | More info |
|---|---|---|---|
| **aodefnocpuscheduled** | config | Parallel degree when using scheduler for tables larger than the threshold specified in aopallelthresholdsize. Is used when aoparallel=1. Example: `aodefnocpuscheduled=4` | 4.2.1.7 "Align Objects Settings" |
| **aofullcopytablespace** | config | aofullcopytablespace: Specify the staging tablespace Align Object must use when full copying tables Please note if the staging tablespace functionality is used during upgrade, the settings used for the upgrade will not be written to the cnf.ini. Example: `Aofullcopytablespace=stage` | 4.2.1.7 "Align Objects Settings" |

| Parameter | Cnf.ini section | Description | More info |
|---|---|---|---|
| **aofullcopyquota** | config | aofullcopyquota is used to limit concurrent full copy of tables thus the amount of temporary space not exceeding this value in MB.<br>Default value is 0, meaning no limit. If set differently the value must never be less than the size of the largest table. Is used when aoparallel=1<br>This setting can be used both with and without specifying a 'Staging Tablespace' in aofullcopytablespace.<br>`Aofullcopyquota=30000` | 4.2.1.7 "Align Objects Settings" |
| **aoparallel** | Config | Determines if Align Object operations should be done using the Oracle Scheduler. Example (0 disables the use 1:enable is default):<br>`aoparallel=0` | 4.2.1.7 "Align Objects Settings" |
| **aoparallelthresholdsize** | config | Threshold size in MB for when to use parallel degree. Default is 50 Example:<br>`aoparallelthresholdsize=100` | 4.2.1.7 "Align Objects Settings" |
| **archcompressfiles** | config | Specify if Oracle compression is allowed to be used compressing external files. Example:<br>`archcompressfiles=1` | 4.2.1.12 "Archiving Related Parameters" |
| **archdir** | config | Oracle directory for archiving. Example:<br>`archdir=SCARCHDIR` | 4.2.1.12 "Archiving Related Parameters" |
| **archparallelinsert** | config | The degree of parallelism and the number of files to use when archiving. Example:<br>`archparallelinsert=4` | 4.2.1.12 "Archiving Related Parameters" |
| **archparallelselect** | config | The degree of parallelism to be used when querying the data to archive. Example:<br>`archparallelselect=4` | 4.2.1.12 "Archiving Related Parameters" |
| **aspclog** | | | |
| **aspcontext** | config | The name of context that is used with ASP. The context holds the ASPCIK for the current session. Example:<br>`aspcontext=CLIENTCONTEXT` | |
| **aspctmp** | | | |
| **auditts** | config | Tablespace for audit trail. Example:<br>`auditts=SCAUDIT` | 4.2.1.1 "Database Connectivity Parameters" |
| **audixts** | config | Tablespace for audit trail indexes. Example:<br>`audixts=SCAUDIX` | 4.2.1.1 "Database Connectivity Parameters" |
| **batchwssize** | config | Specifies the Workspace size in kilo bytes to be used for batch jobs at startup. Used if the size is different from default 'maxws'. Example:<br>`batchwssize=409600` | 4.1.2.2.1 "Workspace" |
| **CmplAUUseLongName** | | This parameter decides if Assignment Units in Compliance Manager should use short or long portfolio/portfoliogroup names. Default is 0 using short names<br>Example:<br>`CmplAUUseLongName=1` | |

| Parameter | Cnf.ini section | Description | More info |
|---|---|---|---|
| comsrv | lib | Path to Communication Server files. Example: `comsrv=\\SCFILE\SCDimension\Prod\ComSrv` | 4.2.1.2 "Redirection of Common Write Access Folders" |
| custtabgen | config | This parameter is solely used by SimCorp and should not be present. (must always be "yes" - if present) | |
| DatabaseTimeZone | config | Translation of times stamps across time zones. Time zones must be named like they are in the tz database. Example: `DatabaseTimeZone=Europe/Copenhagen` | 3.3.10 "Time Zone Adjustment" |
| datowner | config | Data tables owner. Example: `datowner=SCDAT` | 4.2.1.1 "Database Connectivity Parameters" |
| datpwd | config | The password of the data tables owner. In rare cases used in support situations. | |
| datts | config | Data tables owner default tablespace. Example: `datts=SCDAT` | 4.2.1.1 "Database Connectivity Parameters" |
| dbalterparallel | config | If set to 1 allows changes to tables to execute in parallel for specific maintenance actions as e.g. patchapply. cnf.ini file Example: `dbalterparallel=1` | 4.2.1.6 "Parallel Options" |
| dbaudit | config | Enable audit trail. Example: `dbaudit=1` | 4.2.1.1 "Database Connectivity Parameters" |
| dbchecknopred | config | Cost-Based Optimizer should not generate extra predicates from CHECK constraints. Example: `dbchecknopred=1` | 4.2.1.13 "CHECK Constraints" |
| dbconnecthost | config | Database host name (Disabled if `dbname` is used). Example: `dbconnecthost=DK01SNT503` | 4.2.1.1 "Database Connectivity Parameters" |
| dbconnectport | config | Database host port (Disabled if `dbname` is used). Example: `dbconnectport=1723` | 4.2.1.1 "Database Connectivity Parameters" |
| dbconnectprotocol | config | Database connection protocol (Disabled if `dbname` is used)..: `dbconnectprotocol=TCP` | 4.2.1.1 "Database Connectivity Parameters" |
| dbconnectservice | config | Database connection service (Disabled if `dbname` is used)... Example: `dbconnectservice=SCDSERVER` | 4.2.1.1 "Database Connectivity Parameters" |
| dbconnectsid | config | Database connection SID (Disabled if `dbname` is used)... Example: `dbconnectsid=T5032132` | 4.2.1.1 "Database Connectivity Parameters" |
| dbconstvalidate | config | Validate constraints upon creation or perform validation by executing the batch job Validate Basic Constraints. Example: `dbconstvalidate=0` | 4.2.1.1 "Database Connectivity Parameters" |

| Parameter | Cnf.ini section | Description | More info |
|---|---|---|---|
| **dbdefnocpu** | config | Override the number of CPU used when using parallel. Should only be used when the Oracle parameter 'cpu_count' should not be used. Example: `dbdefnocpu=3` | 4.2.1.7 "Align Objects Settings" |
| **dbgrant** | config | Grant to public or only between system and data table owners. Default is no grant to public and is seldom used Example: `dbgrant=0` | 4.2.1.1 "Database Connectivity Parameters" |
| **dbindexjoinselect** | config | Allow index joining on tables in loading positions selects. Example: `dbindexjoinselect=1` | 4.2.1.6 "Parallel Options" |
| **dbindexmon** | config | Enable index monitoring. Example: `dbindexmon=1` | 4.2.1.10 "Index Monitoring" |
| **dbindexparallel** | config | Allow indexes to be created in parallel. Example: `dbindexparallel=1` | 4.2.1.6 "Parallel Options" |
| **dbmaxcursors** | config | Max reusable cursers. Example: `dbmaxcursors=30` | 4.1.2.2 "Memory Allocation Balancing" |
| **dbmaxfetchalloc** | config | Max fetch size in bytes. Example: `dbmaxfetchalloc=5000000` | 4.1.2.2 "Memory Allocation Balancing" |
| **dbname** | config | Data base source name. Example: `dbname=SCPROD` | 4.2.1.1 "Database Connectivity Parameters" |
| **dbnomergesubq** | config | Specify if NO_MERGE sub queries should be used. Example: `dbnomergesubq=0000100` | 4.2.1.6.1 "Loading positions Parameters" |
| **dbocistmtcache** | config | Controls the number of prepared statements which will be cached on the client PC. Default is 400. Example: `dbocistmtcache=800` This parameter should only be present in cnf.ini as a result of a performance optimisation project performed in cooperation with SimCorp. | 4.1.2.2"Memor y Allocation Balancing" |
| **dbparalleldegree** | config | Parallel degree used when executing select in parallel. Example: `dbparalleldegree=4` | 4.2.1.6.1 "Loading positions Parameters" |
| **dbparallelselect** | config | Allow selects in loading positions to execute in parallel. Example: `dbparallelselect=0000011` | 4.2.1.6.1 "Loading positions Parameters" |
| **dbpeekbind** | config | Enable bind peeking. Example: `dbpeekbind=0000100` | 4.2.1.6.1 "Loading positions Parameters"" |
| **dbpeekbinddex** | config | Control bind peeking in the Data Extractor. Example (enable): `dbpeekbinddex=1` | 4.2.1.11 "Bind Peeking" |
| **dbpeekbindmain** | config | Control bind peeking (but not in the Data Extractor or the report generator). Example(disable): `dbpeekbindmain=0` | 4.2.1.11 "Bind Peeking" |

| Parameter | Cnf.ini section | Description | More info |
|---|---|---|---|
| dbsessioncachedcursors | Config | This parameter should only be present in cnf.ini as a result of a performance optimisation project performed in cooperation with SimCorp | |
| dbstat | config | Enable statistics. If set to `1` the 'Database Performance Maintenance' activity can be used, if set to `0` it cannot. Example: `dbstat=1` | 4.2.1.1 "Database Connectivity Parameters" |
| dbstatparallel | config | Allows SimCorp Dimension to take advantage of parallel execution during database statistic gathering. Example: `dbstatparallel=1` | 4.2.1.6 "Parallel Options" |
| dbuseplsql | config | Chooses if copying tables uses PL/SQL or SQL. The parameter is used in installation/upgrade programme and by the data extractor in specific situations. Default is to use SQL. `dbuseplsql=0` | |
| dexrole | config | Role with permissions to DEX schema objects. Example: `dexrole=SCDEXROLE` | 4.2.1.1 "Database Connectivity Parameters" |
| dump | lib | Path to error dump files. Example: `dump=\\SCFILE\SCDimension\Prod\Tmp\Dump` | 4.2.1.2 "Redirection of Common Write Access Folders" |
| dicint | config | This parameter is solely used by SimCorp and should not be present. | |
| dicniu | config | This parameter is used by the installation/upgrade programme and should never be present in a running installation. | |
| helpsystem | lib | Path to the folder where extracted Help System files are kept. Example: `helpsystem=\\SCFILE\SCDimension\helpsystem` | |
| icon | config | The colour of the spot on icons shown in the upper left corner of all SimCorp Dimension windows and of the SimCorp Dimension icon shown in the Windows task Notification area. Example: `icon=blue` | 4.2.1.3 "Colour Coding Shortcut and Icon for Installation Variants" |
| iconcolinforms | config | The menu bar area of all SimCorp Dimension windows can be coloured in the colour chosen by "icon" parameter Example: `iconcolinforms=1` | 4.2.1.3 "Colour Coding Shortcut and Icon for Installation Variants" |
| indexts | config | Tablespace for indexes. Example: `indexts=SCINDX` | 4.2.1.1 "Database Connectivity Parameters" |
| LocalCnfIni | lib | Used to decide if the CNF.ini file is to be copied to a local client or if Symbolic link to the netroot installation is used 0= symbolic (default) 1=copy. Example `LocalCnfIni=0` | 5.2.2 "Local Installation" |

| Parameter | Cnf.ini section | Description | More info |
|---|---|---|---|
| **log** | lib | Path to Log files. Example:<br>`log=\\SCFILE\SCDimension\Prod\Log` | 4.2.1.2 "Redirection of Common Write Access Folders" |
| **logfile** | config | Specifies if the SCD.log should be shrunk without a copy of the old file (values in bytes). Example:<br>`LogFile=<logfilename>[,<i64LogMax>, <i64LogSkrink>]` | 6.1.10.2 "SimCorp Dimension System Log Files |
| **logfilename** | config | Specifies if the name of the logfile should be changed. Default is scd.log. The name must not contain any special characters or Unicode.<br>Example:<br>`logfilename=systemlog.scd` | 6.1.10.2 "SimCorp Dimension System Log Files |
| **logRotateSize** | Config | Specifies if log-file should be rotated (rotatesize in bytes). Example:<br>`LogRotateSize=5242880` | 6.1.10.2 "SimCorp Dimension System Log Files" |
| **logsingleline** | Config | Specifies if log entries should be single line, default is 0="multiple lines". Example:<br>`LogSingleLine=0` | 6.1.10.2 "SimCorp Dimension System Log Files" |
| **maxws** | DyalogAPL | Specifies the Workspace size in kilo bytes to be used for ordinary users at startup. Used if the size is different from default. Example:<br>`maxws=409600` | 4.1.2.2.1 "Workspace" |
| **mucs** | config | Specifies the MUCS server and port. Example:<br>`mucs=DK01WP4017,5223` | 7.10.3 "SCD.LOG Entries Useful to Know", 6.6.7.1 "Running MUCS", 6.6.7.5 "Error Handling", 4.2.2.1 "MUCS Failover Configuration" |
| **mucsfailover** | config | Specifies the failover MUCS. Example:<br>`mucsfailover=SRV02,5660` | 4.2.2.1 "MUCS Failover Configuration" |
| **mucsfailoveremail** | config | Email address to which an email should be sent when the failover MUCS takes over. Example:<br>`mucsfailoveremail=jbs@afirm.com` | 4.2.2.1 "MUCS Failover Configuration" |
| **MucsLogFile** | config | Specifies if the MUCS.log should be shrunk without a copy of the old file (values in bytes). Example:<br>`MucsLogFile=<logfilename>[,<i64LogMax>,<i64LogSkrink>]` | 6.1.10.2 "SimCorp Dimension System Log Files" |

| Parameter | Cnf.ini section | Description | More info |
|---|---|---|---|
| **MucsLogRotateSize** | config | Specifies if MucsLogFile should be rotated (rotatesize in bytes). Example: MucsLogRotateSize=5242880 Example: `MucsLogRotateSize=5242880` | 6.1.10.2 "SimCorp Dimension System Log Files" |
| **mqtabrole** | config | Specifies the name of the role to grant to non SimCorp Dimension users who should be able to update some specific interface tables from outside SimCorp Dimension. Example: `mqtabrole=batchqueueusers` | 4.1.4.9 "External Data Access" |
| **netroot** | Lib | UNC path to the Central Network Installation. Example: `netroot=\\servername\sharename\prod\` | 4.2.1.8 "Netroot" |
| **omauthentication** | config | Authentication method used when connecting to the SQL Server instance. Options are:<br>• 0 – Windows authentication<br>• 1 – SQL authentication<br>Default is 0, Windows authentication:<br>Windows Authentication will use the account defined against the FIX.NET Server service. SQL Authentication will use the specified user name/password | 6.5.7 "Order Manager Users" |
| **Omcachescopename** | config | Servername used to identify the Elvin router. This must be unique across the network and is case-sensitive and must match what is specified in the elvind.conf Example: `omcachescopename=dk01ws1603` | |
| **Omelvinhost** | config | Physical location of the Elvin Router service. This can be either a server name or its IP address.<br>Example:<br>`omelvinhost=dk01ws1603` | |
| **Omelvinserviceport** | config | Port on which the Elvin service is listening. Default value 2917. Example:<br>`Omelvinserviceport=2917` | |
| **omfixdatabasename** | config | Name of the FIX engine database (Initial Catalog) located on the SQL Server Example:<br>`omfixdatabasename=FIX` | |
| **omfixservicehostname** | config | Physical location of the FIX.NET Server service. This can be either a server name or its IP address and must include the instance name if one is defined Example:<br>`omfixservicehostname=SQLSERVER\FIX` | 6.5.7 "Order Manager Users" |
| **Ommanagementwebserviceport** | config | Port on which the Order Manager Management service listens. Default value= 8085. Example:<br>`Ommanagementwebserviceport=8082` | |
| **ommgmtsvcnotificationport** | config | Port on which the Management service listens for Oracle notifications (default =-1). Example:<br>`ommgmtsvcnotificationpport=8090` | |
| **OmMsgBridgeNotificationPort** | | Port on which the Message Bridge listens for Oracle notifications (required for Trade Order Status updates only) Default =-1 Example:<br>`OmMsgBridgeNotificationPort=8091` | |
| **Omorderserverwcfport** | config | Port on which the Order Manager Order Server service listens. Default= 1973. Example:<br>`Omorderserverwcfport=1973` | |
| **Omroot** | config | Location of Order Manager override folder when running with a sprit root configuration. Example:<br>`ordermanager=\\dk01snt080\t0921107\split\54\test_dk2_sp1\ordermanager` | |
| **omserviceshost** | config | Physical host on which the Order Manager services are running. This can be either a server name or its IP address. Example:<br>`omserviceshost=dk01ws1603` | |

| Parameter | Cnf.ini section | Description | More info |
|---|---|---|---|
| **omsqlserverhost** | config | Physical location of the SQL Server. This can be either a server name or its IP address. Add the database instance name separated by '\' if required. Examples:<br>`omsqlserverhost=DatabaseServer1`<br>or<br>`omsqlserverhost=DatabaseServer1\DatabaseInstance` | |
| **omsqlserverpassword** | config | Password for the SQL User account used when accessing the FIX engine database on SQL Server via SQL authentication. Requires the parameter omauthentication to =1. | |
| **omsqlserverusername** | config | SQL Server defined user name for database connectivity. Must have permissions to the FIX engine database | |
| **protected** | lib | Path to Protected files. Example:<br>`protected=\\SCFILE\SCDimension\Prod\Protected` | 4.2.1.2 "Redirection of Common Write Access Folders" |
| **rconnect** | lib | Path to **OPERATIONAL DATA ASSISTANT** (Remote Connect) files. Example:<br>`rconnect=\\SCFILE\SCDimension\Prod\Rconnect` | 4.2.1.2 "Redirection of Common Write Access Folders" |
| **rep** | lib | Path to Report files. Example:<br>`rep=\\SCFILE\SCDimension\Prod\Rep` | 4.2.1.2 "Redirection of Common Write Access Folders" |
| **reportrole** | config | Role for select access for use by report users. Example:<br>`reportrole=SCREPROLE` | 4.2.1.1 "Database Connectivity Parameters", 7.11 "User Privileges" |
| **scdlogsplit** | config | Specifies if the system log file should be split or not, default is 0="no splitting". Example:<br>`ScdLogSplit=1` | 6.1.10.2 "SimCorp Dimension System Log Files" |
| **selrole** | config | Role for select access for use by other users. Example:<br>`selrole=SCREPROLE` | 4.2.1.1 "Database Connectivity Parameters" |
| **serverlog** | Lib | Log directory base of service host server, server log directory is the value suffixed with ServiceHosts\[SERVER ID] Example:<br>`serverlog=` | 4.2.1.1 "Database Connectivity Parameters", 7.11 "User Privileges" |
| **serverwssize** | Config | Specifies the Workspace size in kilo bytes to be used for servers at startup. Used if the size is different from default. Example:<br>serverwssize=409600 | 4.1.2.2.1 "Workspace" |
| **shutdownbyuser** | config | List of users who are allowed to shutdown SimCorp Dimension sessions from a command line. Example:<br>`shutdownbyuser=TPG, JWR, ABC` | 4.2.1.9 "Shutdownby user and Shutdownfrompc" |

| Parameter | Cnf.ini section | Description | More info |
|---|---|---|---|
| **shutdownfrompc** | config | List of PCs from which it is possible to shutdown SimCorp Dimension sessions from a command line. Example:<br>`shutdownfrompc=P389WS` | 4.2.1.9 "Shutdownby user and Shutdownfrompc" |
| **StandbyDBConnstr** | config | If the parameter StandbyNameMode = 1 it is necessary to state the connection string. The connection string must be in uppercase and must not contain CR/LF or TAB characters. Example:<br>`(DESCRIPTION = (ADDRESS_LIST = (ADDRESS =(PROTOCOL = TCP)(HOST = DK01SU0903)(PORT = 1521)))(CONNECT_DATA = (SID = U1031101)))` | 4.3.2 "Oracle Active Data Guard" |
| **StandbyDBName** | config | Enabling the use of Standby Database. Example:<br>`StandbyDBName=IMSDEV_ADG` | 4.3.2 "Oracle Active Data Guard" |
| **StandbyNameMode** | config | Defines if the Database name(0) or Connection string(1) will be used for connecting to the Standby database. (In System Environment Configuration it is the radio button in Standby DB configuration section 0=Database name 1= Connection string) Default is 0, Database name. Example:<br>`StandbyNameMode=1`<br>If StandbyNameMode=1 StandbyDBConnstr needs to be used. | 4.3.2 "Oracle Active Data Guard" |
| **StandbyTimeout** | config | Defines the amount of time (in seconds) for the Data Extractor to wait for a standby database to be synchronized with the primary database. Affect the Data Extractor only. Example:<br>`StandbyTimeout=10` | 4.3.2 "Oracle Active Data Guard" |
| **state** | config | The name (Installation type) of the SimCorp Dimension installation. Example:<br>`state=PROD` | 4.2.1.4 "Naming the SimCorp Dimension Installation" |
| **supportsite** | config | It is possible to change the supportsite address. Example:(default value: Supportsite=https://clientsupport.simcorp.com/)<br>`Supportsite=https://supportsite.simcorp.com/eai_enu/start.swe` | 2.4.1 "Incidents and Service Requests" |
| **Svcauthmode** | config | The Service Host authentication mode. (Default is 0, disabled). Example:<br>`SvcAuthMode=1` | 4.2.4.4 "Authentication Configuration in SimCorp Dimension" |
| **SvcEncryptMode** | config | Enable Service Host encryption. Example:<br>`SvcEncryptMode=1` | 4.2.4.4 "Authentication Configuration in SimCorp Dimension" |
| **SvcIsolationMode** | config | Specifies service isolation mode:<br>Default value is 0 "shared process", meaning all services will be hosted in the same process as service host.<br>Example:<br>`SvcIsolationsMode=1` | 4.2.4.5 "Service Isolation of Service Host in SimCorp Dimension" |

| Parameter | Cnf.ini section | Description | More info |
|---|---|---|---|
| SvcLongRunning | config | Specifies how long time a service host call expect to last Default is 1200000 milliseconds. Will only be used if SvcServiceMetricsEnabled=1. Example: `SvcLongRunning=1000000` | 4.2.4.6 "Service Metrics in SimCorp Dimension" |
| SvcNearRealtime | config | Specifies the expected response time in milliseconds for NearRealtime service Service Host. Default is 500 milliseconds. .Will only be used if SvcServiceMetricsEnabled=1 Example: `SvcNearRealtime=600` | 4.2.4.6 "Service Metrics in SimCorp Dimension" |
| SvcOnlineRequest | config | Specifies the expected response time in milliseconds for OnlineRequest Service Host. .Will only be used if SvcServiceMetricsEnabled=1 Default is 5000 Example: `SvcOnlineRequest=4000` | 4.2.4.6 "Service Metrics in SimCorp Dimension" |
| SvcServiceMetricsEnabled | config | Specifies if Service Host metrics are collected. (Default is 1, enabled). Example `SvcServiceMetricsEnable=0` | 4.2.4.6 "Service Metrics in SimCorp Dimension" |
| sysowner | config | System tables owner. Example: `sysowner=SCSYS` | 4.2.1.1 "Database Connectivity Parameters" |
| systemprofile | Config | Profile for system users. Example: `userprofile=SCUSERPROFILE` | 4.2.1.1 "Database Connectivity Parameters" |
| systs | config | System tables owner default tablespace. Example: `systs=SCSYS` | 4.2.1.1 "Database Connectivity Parameters" |
| tmp | lib | Path to Temporary files. Example: `tmp=\\SCFILE\SCDimension\Prod\Tmp` | 4.2.1.2 "Redirection of Common Write Access Folders" |
| transport | lib | Path to Transport queues. Example: `transport=\\SCFILE\SCDimension\Prod\Transport` | 4.2.1.2 "Redirection of Common Write Access Folders" |
| trdarcts | config | Order Manager archive tablespace. Example: `trdarcts=SCTRDARCTS` | 4.2.1.1 "Database Connectivity Parameters" |
| trdindexts | config | Order Manager index tablespace. Example: `trdindexts=SCTRDINDEXTS` | 4.2.1.1 "Database Connectivity Parameters" |
| trdowner | config | Order Manager schema owner. Example: `trdts=SCTRD` | 4.2.1.1 "Database Connectivity Parameters" |
| trdts | config | Order Manager data tablespace. Example: `trdarcts=SCTRDTS` | 4.2.1.1 "Database Connectivity Parameters" |

| Parameter | Cnf.ini section | Description | More info |
|---|---|---|---|
| **unifiedlogging** | config | The mode of log operation. Example:<br>`unifiedlogging=1` | 4.2.1.14 "Unified Logging" |
| **urlprotocol** | portal | Portal address bar starting name. Example:<br>`urlprotocol=scprod` | 4.2.1.5 "The URL Protocol Name" |
| **useeventlog** | config | Allows messages to be send to Windows Event log. If set to 1, messages are send to Windows Event log – SCD log file is still used. Default is 0<br>`useeventlog=1` | 6.1.10.2 "SimCorp Dimension System Log Files |
| **useosaut** | config | Allow for single sign-on using the OS credentials for automatic login on SimCorp Dimension. Example:<br>`useosaut=1` | 6.5.2 "Unattended Logon" |
| **userprofile** | config | Profile for users. Example:<br>`userprofile=SCUSERPROFILE` | 4.2.1.1 "Database Connectivity Parameters" |
| **userrole** | config | Role for users. Example:<br>`userrole=SCROLE` | 4.2.1.1 "Database Connectivity Parameters" |
| **userts** | config | Default tablespace for users. Example:<br>`userts=SCUSERS` | 4.2.1.1 "Database Connectivity Parameters" |
| **UseStandbyDB4DEX** | | Enabling the use of Standby Database for SimCorp Dimension Data Extractor (Default is 0: Disabled). Example:<br>`UseStandbyDB4DEX=1` | 4.3.2 "Oracle Active Data Guard" |
| **UseStandbyDB4Rep** | | Enabling the use of Standby Database for reporting purpose. Example:<br>`UseStandbyDB4Rep=1` | 4.3.2 "Oracle Active Data Guard" |
| **XPLookAndFeel** | DyalogAPL | Change how SimCorp Dimension APL windows appear. Default is enabled (1) meaning that if you choose an Aero theme or basic Windows7 the windows will be shown as such. If disabled (0) the windows will be shown in "old style" despite the chosen Windows Theme. Example:<br>`XPLookAndFeel=0` | 1.4 "APL or C# Based Windows" |

**Note** It is necessary to make a new workspace, using the task **Update Workspace**, after changes to cnf.ini. The service hosts are using a configuration cache, which is synchronized when executing **Update Workspace**. Failure to do so will cause service hosts to connect to the old environment from before the cnf.ini update. **Update Workspace** is executed as part of **Patch-Apply**

## 7.5 Disabled Menu Items in a Local Installation

The menu actions mentioned below will be disabled when running locally – they are only accessible for users having started SimCorp Dimension from a Central Network Installation. All belong to the **MAINTENANCE** > **SYSTEM MAINTENANCE** module:

- **Database Administration** > **Change Password System**
- **Database Administration** > **Change Password Data**
- **Installation Administration** > **Apply Patches**
- **Installation Administration** > **Cleanup Extraneous Files**

- **Installation Administration** > **Generate Forms and Menus**
- **Installation Administration** > **Install Reports, Filters and XpressInstrument Files**
- **Installation Administration** > **Synchronise Database Version Information**
- **Installation Administration** > **Update Installation File**
- **Installation Administration** > **Update Workspace**
- **Installation Administration** > **Update Local Installer**
- **System Options** > **System Environment Configuration**

## 7.6 Partitions Overview

A number of modules have been prepared for the use of partitioned tables, as described in section 6.1.3 “Partitioning”.

These tables, along with other partitioning information for each module, have been described in the sections below.

### 7.6.1 Audit Trail & Four Eyes Principle

For **AUDIT TRAIL & FOUR EYES PRINCIPLE** the number of partitions is the number of months with old data + 36 extra partitions created ahead. Tables are partitioned as:

| Table | Description |
|---|---|
| AUDITMASTER | Ranges of one month |
| AUDITDETAIL<br>AUDITMASTEREXT<br>AUDITDETAILEXT<br>AUDITSECURITIES<br>EYES4APPROVED<br>EYES4UNAPPROVED | References to AUDITMASTER.AUDITMASTERIK |

### 7.6.2 Fund Accounting

For **FUND ACCOUNTING** tables the number of partitions is the number of months with old data + 36 extra partitions created ahead. Tables are partitioned as:

| Table | Description |
|---|---|
| CALCFIGURES | Partitioned by date. Sub partitioned based on long term storage value. |
| CALCFIGDETCOMP<br>CALCFIGLOG<br>CALCFIGPFC<br>CALCFIGREFS<br>CALCFIGUREDETAILS<br>CALCFIGUREDETCF<br>CALCFIGURESUB<br>FUNDFIGUREMCF | References to CALCFIGURES.CALCFIGIK |

### 7.6.3 Market data

The **MARKET DATA** tables are partitioned by range months with interval partitioning (new partitions are automatically created). Tables are partitioned as:

| Table | Description |
|---|---|
| **PRICES**<br>**PRICESONL** | Interval-range partitioned by months on the PRICEDATE column |

### 7.6.4 Portfolio Calculations

The **PORTFOLIO CALCULATIONS** tables use a LIST partition on the PFCMIK field on PFCDATES. All children and grandchildren referencing PFCDATES are partitioned by Reference. Initial partitioning is done as a partition for each “original” PFCMIK’s that is calculations that are not copies of other calculations, whereas copies will reside in the default partition.

The Portfolio calculations are partitioned due to the performance gains in deleting data during calculations, rather than for archiving purposes. This also implies that there is no maintenance operations required for this set of tables:

| Table | Description |
|---|---|
| PFCDATES | Partitioned by PFCMIK. |
| PFCHOLDINGS<br>PFCKEYRATIOS<br>PFCPERIODS<br>PFCHOLDINGMATCH<br>PFCSTRUCTCOMPS<br>PFCIMPKEYRATIOS<br>PFCHEDGEHOLD<br>PFCHEDGEPER<br>PFCCOSTS<br>PFCPERTAXSPECIALITY<br>PFCFORMULASFLDS<br>PFCDELTAVEC<br>PFCBUSINESSCLASSES<br>PFCHOLDFRCREDMATCH<br>PFCFORMULASRES<br>PFCSUBLUNRFXGAINLOSS<br>PFCFIFOFORMULASFLDS<br>PFCHOLDWSADJ<br>PFCPROCEEDREINVESTS<br>CALCEXPL<br>PFCHOLDRESTIMATCH<br>PFCCASHFLOWS<br>PFCCONTRACTHOLD<br>PFCHEDGEPRICESRCH | Partitioned by reference |

### 7.6.5 Unified Logging

For **UNIFIED LOGGING** the number of partitions is variable, as they are created in one month intervals as needed. Tables are partitioned as:

| Table | Description |
|---|---|
| LOGMESSAGES | Ranges of one month<br>OFLOW: Overflow partition |

The overflow partition should be empty.

## 7.7 Folder Structure

SimCorp Dimension consists of a number of folders residing on a file server and a database system containing a number of tables and other database objects.

The client application of SimCorp Dimension is intended to run on a Microsoft Windows based PC in a LAN environment, with all program code placed on a file server. The clients can be run in one of two modes, Local or Central Network Installation:

**Local Installation**

A subset of the program folders are copied from the file server to the local PC using a setup program

Running Local Installation still requires a Central Network Installation with the folder structure described in this section to be present on a central file server.

More information: Section 5.2.2 “Local Installation”

**Central Network Installation**

No program folders are required on the local PC; all are used from the central installations.

More information: Section 5.2.1 “Central Network Installation”

SimCorp Dimension consists of a number of folders, placed in a root folder.

The exact set of folders available in an installation may vary with the choice of modules section 7.8 “Folders” gives an overview of the content of the folders.

Some of the folders can contain sub-folders which, in turn, can contain other sub-folders.

Usually, the folder structure resides directly under a root folder (for instance `Prod`, `Test` or `New`) which is placed in a shared directory, but sometimes it may be desirable to split programs and data directories into two separate groups. Please refer to section 4.2.1.2 “Redirection of Common Write Access Folders” for more details.

Due to known errors, it is not recommended that the root of a SimCorp Dimension installation is a drive letter. The SimCorp Dimension root folder should reside in a dedicated folder, such as `\\server\share\scRootFolder`. The root folder must not be a share itself

In addition, a number of folders for storing analyses definitions, reports, screen dumps, etc. can be defined.

SimCorp Dimension does not support parentheses as part of the folder naming in the root folder or any folders preceding this.

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| Suggested Reading |
| --- |
| Section 7.8 “Folders” |
| Section 7.9 “Folder Permissions” |
| Section 4.2.1.2 “Redirection of Common Write Access Folders and HelpSystem” |
| Section 6.1.11 “Moving the Folder Structure” |

## 7.8 Folders

This section gives an overview of the contents of the SimCorp Dimension application folders and other folders.

### 7.8.1 The AddOns Folder

This folder is used for various subfolders needed by separately installable modules and third party software. The contents of each subfolder will consist of all kinds of files, depending on each module's needs, and can in turn contain other subfolders.

Some modules will use a subfolder in `AddOns` for their installation packages, others for their runtime files, structured in second (and further) level subfolders as needed.

Currently the following subfolder (first level) can be found:

- `CrystalSetup`, which holds the installation package or packages for the Crystal reports runtime supplied with SimCorp Dimension.

### 7.8.2 The Bin Folder

This folder contains all executable files, for example Dyalog APL/W with various files and scd.exe together with a number of static configuration files. Third party DLLs are also placed here.

The `Bin` folder also contains a subfolder called `Images` which contains the various icons, colour codes etc. used by SimCorp Dimension and a subfolder `Debug`, which contains files and folders required by SimCorp Support when performing onsite debugging.

Dependent on the language of the installation the `Bin` folder may contain a subfolder `de` for German language installations or a subfolder `fr` for French language installations.

The files in the `Bin` folder can be categorised in the following groupings:

- Program files
- APL/W related files
- scd.exe related files
- SimCorp Dimension related files
- MQ Server related files
- Database Interface
- Portal files
- Real-Time related files
- Graphics related files
- Crystal Reports related files
- Miscellaneous utilities
- Icon set files
- Local installation files
- **AUSTRALIAN CGT CALCULATION ENGINE** related files
- **ORDER MANAGER** module related files
- **XPRESSINSTRUMENTS** module related files
- .NET Framework related files
- Communication Server related files

| | |
|---|---|
| **Note** | Configuration files like `Def.ini` and `Files.ini` may not be manually edited, as it can lead to fatal consequences for the stability of the system |

### 7.8.3 The Comsrv and Protected Folders

Content in these folders is only present when Protected File Directories are used. The Comsrv folder contains the protected file directories used by the Communication Server. The Protected folder contains a folder for "illegal files" and other non-Communication Server related protected file directories.

### 7.8.4 The Data Folder

The only files in the Data directory are the configuration files.

| | |
|---|---|
| **Note** | The ins.ini file cannot be modified manually – if changes are needed, a new installation file must be delivered from SimCorp and installed from within SimCorp Dimension. Please be aware that SimCorp Dimension will not be able to start if ins.ini is modified manually. Please refer to the SimCorp Dimension ***System Maintenance*** User Manual for further details on how to update the ins.ini file. |

### 7.8.5 The DevIML Folder

The `DevIML` folder contains the files used in connection with XpressInstrument Editor.

### 7.8.6 The Doc Folder

In versions prior to SimCorp Dimension 5.3 the Doc folder contained the English online help file and all the English manuals available for the system.

The Doc folder also contained a sub-folder called CompanyNotes, where English company notes files were placed.

If your installation included other languages, like German or French, the Doc folder would contain sub-folders named de and/or fr. The de folder contained the German documentation and company notes and the fr folder contained the French documentation and company notes.

From 5.3 the PDF files and the scd.chm files are no longer used, you may delete these files from the Doc folder. Do not delete the CompanyNotes folders, if they are used for your own company notes files.

### 7.8.7 The HelpSystem Folder

From 5.3 the HelpSystem folder contains the SimCorp Dimension system documentation. It is possible for all SimCorp Dimension installations to share the same help documentation as long as the installations are the same versions. In the installations the path to the HelpSystem Folder is registered. Please see 4.2.1.2 "Redirection of Common Write Access Folders and HelpSystem"

By default the HelpSystem folder contains a sub-folder for each implemented language.

| | |
|---|---|
| **Note** | Updates to the Help System is not part of SimCorp Dimension patch apply. At regular intervals updates can be downloaded from Client Support and installed. |

### 7.8.8 The Log Folder

The Log folder contains SCD.LOG, MUCS.LOG by default. If not specified otherwise in SimCorp Dimension, it also contains:

- Other log files
- Portfolio and performance compare files
- Limit files

Please refer to section 6.1.10.2 “SimCorp Dimension System Log Files” for more detailed information on the various log files created by the SimCorp Dimension installation.

### 7.8.9 The Maintenance folder

The Maintenance folder contains critical log files concerning the program consistency of the system. At present the patch##.log, the patcherr.log and VerifyDbStructure##.log are placed in this folder together with the log files generated during installation and upgrade of SimCorp Dimension from upgrades to 5.4 onwards. Please refer to section 7.10.2 “Installation/Upgrade Log Files”

The maintenance folder contains a subfolder called `Lock` that is to be used by the Service Agents. (Please refer to 4.2.5 “Service Agent”) The `Lock` folder will contain a file called `patch.stop` placed as part of the patch apply and removed after patch apply has finished. The file is used by the Service Agents to secure that the process shuts down all services and wait for the file to be removed and then starts up services again.

| Note | For SimCorp Dimension 5.4 the `Lock` folder will only be used in tests of the new Service framework. |
|---|---|

### 7.8.10 The Mediator Folder

The `Mediator` folder contains files for use with the SimCorp Dimension Communication Server. Sub-folders may exist, depending on the implementation.

Please refer to the SimCorp Dimension ***Communication Server*** User Manual for more details on configuration.

The folder contains files with extensions XML and XSLT. They are all part of the Communication Server. The number of files and their extension depends on the actual implementation.

### 7.8.11 The OrderManager Folder

This folder with sub-folders will usually be empty but may hold client specific configuration information for **ORDER MANAGER**.

### 7.8.12 The Patches Folder

This folder is initially created empty. The folder is used for placement for the self extracting exe-file containing the SimCorp Dimension patches. Please refer to section 5.4 “Applying Patches”.

### 7.8.13 The Prog Folder

The program files needed for SimCorp Dimension placed in the Prog directory are primarily binary files containing the APL-code for SimCorp Dimension in the shape of program files (.dcf), prg.ini and the APL workspace files (.dws).

Runtime programs and nearly all system tables are loaded into memory directly from the SimCorp Dimension workspace. However, the master copy of all APL functions is stored in a number of program files (FNSxx.DCF).

Other files in the Prog folder hold static information about menus and applications as well as program configuration.

Please refer to section 7.16 “Memory Management” for more details on the workspace.

### 7.8.14 The RConnect Folder

The RConnect folder and its subfolders are used by **OPERATIONAL DATA ASSISTANT** for processing error logs generated by SimCorp Dimension as part of the internal error handling.

Error logs generated by SimCorp Dimension are stored in the subfolder `Outgoing`. Furthermore; errors are also being logged to the event log on the machine if possible.

Files in the `Outgoing` folder are of xml type.

| **Note** | When copying the RConnect folder and its subfolders, for instance during an upgrade, the contents should not be copied. |
|---|---|

Please refer to section 2.4.2 “Operational Data Assistant Solution” for information on Operational Data Assistant.

### 7.8.15 The StdFilt, StdIML, StdRep, IML and Rep Folders

StdIML contains templates and definitions files for the creation of static data associated with standard XpressInstruments.

The `StdFilt` and `StdRep` folders contain SimCorp supplied standard filters and standard reports, respectively.

The `IML` and `REP` folders are initially created empty and can be used for client defined templates associated with XpressInstruments and client made reports.

### 7.8.16 The Tmp Folder

The system uses this folder for various temporary files as default destination when not otherwise specified within SimCorp Dimension.

By default this folder contains a sub folder `Dump`, which is used by the system for error logging. The `Dump` folder can be redirected to another location (please refer to section 4.2.1.2 “Redirection of Common Write Access Folders”).

Data in the Tmp folder should be cleaned up frequently but please note that ALL processes including MUCS server, batchjobs, servers etc. needs to be down before the cleanup is carried out else it will impact the system

The folder `ao` is a subfolder to tmp used for “Align Objects” – see 4.1.4.2 ”Align Objects”

### 7.8.17 The Transport Folder

Folder used for files generated by the Configuration Transport System. For more information on the functionality please refer to the SimCorp Dimension Online Help.

### 7.8.18 The TRD Folder

Contains SQL script files used for maintenance of the **ORDER MANAGER** specific table spaces in the database.

To protect against unauthorised changes made to the script files located on the Trd area, all the script being executed will be validated against what we have registered about these file.

### 7.8.19 The Upgrade Folder

Contains the files used by the check-before-upgrade and upgrade programs.

### 7.8.20 The Util Folder

This folder contains program files containing a number of utility functions typically used by SimCorp in a support situation.

### 7.8.21 The Windows %TEMP% Folder

The Windows %TEMP% folder is being utilised in several ways by SimCorp Dimension and its system environment during normal execution.

This use has, where appropriate, been described in the relevant sections of this manual:

- Section 7.10.3 “SCD.LOG Entries Useful to Know”
- Section 7.1.2 “Batch Job Group”
- Section 6.6.3.3 “Windows Service Troubleshooting”
- Section 4.2.4 “Service Host Server”
- Section 6.6.5 “Starting Batch Jobs or Servers from a Scheduler”

Below are some additional situations, where the %TEMP% folder is used, that might be useful to know about. There might be more uses, not described in this manual, as the %TEMP% folder is in general widely used.

#### 7.8.21.1 Generated DLL in %TEMP% sub-folders

.NET generates DLL’s on the fly when, for instance, the application uses reflection. SimCorp Dimension does the same for application layouts in C# based applications. The DLL's are generated in a temporary folder called “IMS XMLSerialisationFactory”.

DLL generation is in general not an issue. But the subsequent load of the generated DLL can be an issue if SimCorp Dimension runs on a system where an application monitor such as AppSense or AppGuard runs. The monitor applications can be configured in such a way, that they deem code being executed from %TEMP% as a potential security risk. The execution/DLL load is then stopped. In this case, SimCorp Dimension may either fail without any warning or not work as intended. Please also refer to section 8.4.3 “SimCorp Dimension Crashes without Normal Error Processing”.

## 7.9 Folder Permissions

Folders preceding and including the SimCorp Dimension root folder must as a minimum have LR permissions for all users.

The minimum access rights for SimCorp Dimension on the detailed level are the rights that the operating system sets per default when the grouped permission settings are configured according to the table below.

Permissions on certain folders only apply to individual users with a certain function responsibility. Please refer to the description in 7.9.2 “Permissions for Certain Users”. Unless otherwise specified, sub-folders should have the same permissions as their parent folder.

### 7.9.1 Permissions for All Users

A number of folders are used for files needed by standard functionality available to all users and, hence, must have the below specified permissions for all users:

*Permission: M=Modify; X=Read & Execute; L=List folder contents; R=Read; W=Write

| Folder | Permissions* |
|---|---|
| Bin | XLR |
| Data | LR |
| Doc | LR |
| HelpSystem | LR |
| Log | MXLRW |
| Maintenance | LR |
| Prog | LR |
| RConnect\Outgoing | LRW |
| Rep | LR |
| StdFilt | LR |
| StdIML | LR |
| StdRep | XLR |
| Tmp | MXLRW |

### 7.9.2 Permissions for Certain Users

Users responsible for patching, ins-file update and other maintenance routines of the SimCorp Dimension installation must have full control privileges for all folders and files.

In addition, SimCorp will need a user account with full control privileges for all folders to be used during maintenance sessions.

Other users need special permissions as specified in the following list:

*Permission: M=Modify; X=Read & Execute; L=List folder contents; R=Read; W=Write

| Folder | Users | Permissions* |
|---|---|---|
| Bin\Images | Users authorised to change icon colour | MXLRW |
| ComSrv | Communication servers and users with access to the **Protected File Directory** task | MXLRW |
| DevIML | Users of the XpressInstrument Editor | MXLRW |
| Doc\CompanyNotes<br>Doc\de\CompanyNotes<br>Doc\fr\CompanyNotes<br>Etc. | Users who need to add text to a CompanyNotes folder | LRMW |
| HelpSystem | Users who need to update the SimCorp Dimension system documentation | LRW |
| IML | Users who work with client defined XpressInstruments templates | MXLRW |

*Permission: M=Modify; X=Read & Execute; L=List folder contents; R=Read; W=Write

| Folder | Users | Permissions* |
|---|---|---|
| Maintenance/Lock | Service Agents needs write access. | MLRW |
| Mediator | Communication servers | LR |
| Patches | Users responsible for patching SimCorp Dimension | MXLRW |
| Protected | Communication servers and users with access to the **Protected File Directory** task | MXLRW |
| RConnect | The server user running **OPERATIONAL DATA ASSISTANT** | MXLRW |
| Rep | Users who write client defined XpressInstruments reports | LRMW |
| Transport | Users generating or reading configurations files through the Configuration Transport System | MXLRW |
| TRD | Users responsible for patching SimCorp Dimension | MLRW |
| Upgrade | Users running upgrade checks | MXLRW |
| Util | SimCorp consultants; for instance in a support situation | LR |

### 7.9.3 Grouped Permission Settings

SimCorp Dimension is tested and certified to work properly with the grouped permission settings, such as “Read & Execute”. However, there may be certain finer grained security attributes that can be revoked without affecting SimCorp Dimension functionality, but as SimCorp Dimension is highly dependent on external third party components and API's, the full impact of revoking permission can be almost impossible to identify.

Some fine grained permission may be obvious to revoke, such as the “Create Folders” permission for folders where write access is required for file logging, but where no one is expected to create new folders. It may also be possible to revoke “Read Extended Attributes” and others, but again, it is hard to be sure that these are never needed by any component.

## 7.10 Log Files

SimCorp Dimension has a comprehensive logging concept, offering information about system installation and upgrade as well as application execution. This section lists the log files and related information.

For more information on how the logs can be managed and viewed from within SimCorp Dimension or by the use of external tools, please refer to section 6.1.10 “Log File Management”.

### 7.10.1 Application Log Files

The following files are written from various tasks and are used to check and verify calculations in the application. Unless stated elsewhere the default location of these files is the folder Log, but for some alternative destination may be specified in the application (for instance, **Miscellaneous Options**)

| File | Description |
|---|---|
| batch.log | May contain useful information when debugging errors in the SimCorp Dimension batch setup |
| dbcontents<version#>.log | Generated when running **Verify Database Contents** |
| dbstats.log | Log file written on completion of the **Database Performance Maintenance** task. The log shows when the task were run and with which parameters and who initiated the job |
| dbstruct<version#>.log | Generated when running **Verify Database Structure.** Placed in the Maintenance folder |
| lmc#.dcf | Used to store application specific data when performing a **Check Limit Utilisation** |
| per#.dcf | Used to store application specific data when performing a **Check Performance Calculation** |
| pfc#.dcf | Used to store application specific data when performing a **Check Portfolio Calculation** |
| server.log | May contain useful information when debugging errors in the SimCorp Dimension application server environment |
| VerifyDbStructure<version#>.log | Errors found during **Verify Database Structure.** Before and after a patch is applied, a check is carried out so that all database objects are valid. The result of this check is written in this log |

### 7.10.2 Installation/Upgrade Log Files

These files are created when performing a SimCorp Dimension installation or a SimCorp Dimension upgrade. They are always stored in the SimCorp Dimension Maintenance folder.

| File | Description |
|---|---|
| errinst<version#>.log | The part of inst<version#>.log that are error messages |
| inst<version#>.log | Logs all messages given during the installation/upgrade |
| response_YYYYMMDD_TTMMSS_<version#>.ini | Response files from installation/upgrade |
| sql<version#>.log | Logs SQL statements during the installation/upgrade |
| warninst<version#>.log | The part of inst<version#>.log that are warning messages |
| SimCorp_Dimension_Installer<datetime>.log | Log generated by install.exe |
| Instdump<Version#>_<YYYYMMDD>_<Time>_AO_LOG_ENTRIES.xml<br>Instdump<Version#>_<YYYYMMDD>_<Time>_AO_RUNS.xml<br>Instdump<Version#>_<YYYYMMDD>_<Time>_DDXML.xml | Log files generated by the database upgrade. The logs are XML-extracts of the tables AO_LOG_ENTRIES, AO_RUNS and DDXML. The logs are generated after the upgrade has completed and are therefore not continuously updated. |

These logs can be useful for SimCorp in troubleshooting scenarios. Therefore, it is recommended that you keep the logs. In versions of SimCorp Dimension prior to 5.4 the logs were placed in the data folder.

### 7.10.3 SCD.LOG Entries Useful to Know

When experiencing trouble starting SimCorp Dimension, SCD.LOG may indicate the nature of the problem preventing SimCorp Dimension from starting. The following are a few examples of log entries together with their meaning and possible cause.

| Log entry | Explanation |
|---|---|
| Could not locate 'DATA' directory | The <SimCorp Dimension>\data directory could not be found. Verify that it exists. Sometimes this error occurs when SimCorp Dimension's patch file has been unpacked on %TEMP% directory and the SimCorp Dimension "Start in" directory is also %TEMP% |
| Failed to set up listener on port ####<br>Failed to initialise TCP subsystem<br>Failed before start of APL | These 3 messages will typically appear after each other in the SCD.LOG. They indicate that it is impossible to start TCP communication (this is the communication between scd.exe and the APL-interpreter). This can be due to a port conflict on the Windows client used to start SimCorp Dimension. SimCorp Dimension automatically sets the port number for local communication to 5000 + PID (scd.exe Process ID, which can be found in Windows **Task Manager**) |
| Connection to MUCS server failed | All SimCorp Dimension sessions connect to the MUCS server at start up. Sessions will keep trying to connect for a configured amount of time. This error comes if no connection can be made before the timeout. For further troubleshooting of this problem try to:<br>look in Cnf.ini under the [config] section for the entry: MUCS=machine, portnumber<br>ping the machine to see if the machine is available<br>Check that the MUCS server has been started on the dedicated server. See section 6.6.7 "MUCS" for more information |

## 7.11 User Privileges

When SimCorp Dimension is installed, a number of database schemas are created, usually called SCDAT, SCSYS and SCTRD.

| Note | Naming may vary in accordance with individual companies' standards. Please be aware that SimCorp should be informed of any alternative naming before the installation of SimCorp Dimension. |
|---|---|

The SCDAT user owns all the application objects, such as data tables, indices, views etc. The tables and indices are typically placed in relation to their function in tablespaces called SCDAT, SCAUDIT, SCINDX and SCAUDIX.

The SCSYS user owns all the application system specific tables, placed in the SCSYS tablespace.

The SCTRD user owns application objects used by the Order Manager and is only present if the Order Manager is installed. As for the SCDAT objects the Order Manager objects are placed in tablespaces in relation to their function. The tablespaces used by the OrderManger is called: SCTRDTS, SCTRDINDEXTS and SCTRDARCTS

During installation a select role (SCREPROLE) is created which provides read only permissions on all tables owned by SCDAT. An additional user (SCREP) is created and granted the select role and can be used as a read only user for access from third party tools, such as Crystal Reports, Microsoft Excel etc.

All users created in SimCorp Dimension are created as users in Oracle and granted a user role 7.11.1 "SCROLE Privileges".

A report role (REPORTROLE) will be created when a report user is created and it will be granted the SELROLE and SCDEXROLE, these roles will therefore need to be in place before report users are created.

Please refer to section 6.5 "User Management" for more details on the user management concept and how to operate it.

### 7.11.1 SCROLE Privileges

All SimCorp Dimension users are granted a user role (SCROLE) which is password protected and set from within the application.

The SimCorp Dimension user role (SCROLE) will be granted `DELETE`, `INSERT`, `SELECT`, `UPDATE` and `EXECUTE` privileges to objects owned by the SimCorp Dimension data and system owners (SCDAT and SCSYS).

In addition the user role gets the following system privileges:

```
ALTER SESSION WITH ADMIN OPTION
MANAGE ANY QUEUE
CHANGE NOTIFICATION
```

and the following privilege on a system object:

```
SELECT ON DBA_AUDIT_SESSION
EXECUTE ON DBMS_LOB
```

### 7.11.2 SCDEXROLE Privileges

A role referred to as the DEX role (SCDEXROLE) will be created and granted to the user role (SCROLE).

For installations not utilising the Data Extractor or Communication Server functionality the DEX role will be "empty" until any of these functions are implemented. When the installation utilises any of the Data Extractor, Archiving or Communication Server functionality, appropriate database access (`SELECT`, `INSERT`, `UPDATE`, `DELETE` and `EXECUTE`) to the object owned by the Data Extractor, Archiving or Communication Server schemas will be granted to the DEX role, thereby allowing the users of the installation to utilise this functionality.

### 7.11.3 SimCorp Dimension User Privileges

The SimCorp Dimension users will be granted the following system privilege:

```
CREATE SESSION
```

Further, the SimCorp Dimension users will be granted the user role (SCROLE). However as the user role is password protected, the role will only be set and activated when the user is logged on through the application and privileges of the user role take precedence over any other privileges given to the user and only the privileges of the role will be enforced in the current session.

### 7.11.4 SCDAT Privileges

The SimCorp Dimension data owner (SCDAT) will be granted the user role (SCROLE) with admin option during installation/upgrade.

| | |
|---|---|
| **Note** | The password for the SimCorp Dimension data owner should be treated according to your company's policies for DBA passwords. |

#### 7.11.4.1 SCDAT System Privileges

The data owner will be given these system privileges:

```
ALTER PROFILE
ALTER SESSION WITH ADMIN OPTION
ALTER USER
ANALYZE ANY
CREATE DATABASE LINK
CREATE JOB
CREATE EVALUATION CONTEXT
CREATE PROCEDURE WITH ADMIN OPTION
CREATE ROLE
CREATE RULE
CREATE RULE SET
CREATE SEQUENCE WITH ADMIN OPTION
CREATE SESSION WITH ADMIN OPTION
CREATE SYNONYM
CREATE TABLE WITH ADMIN OPTION
CREATE TRIGGER WITH ADMIN OPTION
CREATE TYPE WITH ADMIN OPTION
CREATE USER
CREATE VIEW
DEBUG CONNECT SESSION
DROP USER
MANAGE ANY QUEUE
MANAGE SCHEDULER
RESUMABLE
```

#### 7.11.4.2 SCDAT Object Privileges

The data owner will be given these object privileges:

```
EXECUTE ON SYS.DBMS_APPLICATION_INFO
EXECUTE ON SYS.DBMS_DB_VERSION
EXECUTE ON SYS.DBMS_JOB
EXECUTE ON SYS.DBMS_LOB
EXECUTE ON SYS.DBMS_LOCK
EXECUTE ON SYS.DBMS_METADATA
EXECUTE ON SYS.DBMS_OUTPUT
EXECUTE ON SYS.DBMS_RLS
EXECUTE ON SYS.DBMS_SCHEDULER
EXECUTE ON SYS.DBMS_SESSION
EXECUTE ON SYS.DBMS_SQL
EXECUTE ON SYS.DBMS_STATS
EXECUTE ON SYS.DBMS_UTILITY
EXECUTE ON SYS.DBMS_XPLAN
EXECUTE ON SYS.UTL_FILE
READ ON DIRECTORY SCDXMLDIR WITH GRANT OPTION
SELECT ON SYS.DBA_ROLE_PRIVS
SELECT ON SYS.DBA_SCHEDULER_JOBS
SELECT ON SYS.DBA_SCHEDULER_WINDOWS
SELECT ON SYS.DBA_SCHEDULER_WINGROUP_MEMBERS
SELECT ON SYS.GV_$ACTIVE_SERVICES
SELECT ON SYS.GV_$INSTANCE
SELECT ON SYS.GV_$LOCK
SELECT ON SYS.GV_$PARAMETER
SELECT ON SYS.GV_$SERVICEMETRIC
SELECT ON SYS.GV_$SESSION
SELECT ON SYS.GV_$SESSION_LONGOPS
SELECT ON SYS.GV_$SESSTAT
SELECT ON SYS.GV_$SQL
SELECT ON SYS.GV_$SQL_PLAN
SELECT ON SYS.GV_$SQL_PLAN_STATISTICS_ALL
SELECT ON SYS.GV_$STATNAME
SELECT ON SYS.V$OBJECT_USAGE
SELECT ON SYS.V_$DATABASE
SELECT ON SYS.V_$INSTANCE
SELECT ON SYS.V_$LOCK
SELECT ON SYS.V_$OPTION
SELECT ON SYS.V_$PARAMETER
SELECT ON SYS.V_$ RESULT_CACHE_STATISTICS
SELECT ON SYS.V_$SESSION
SELECT ON SYS.V_$SESSION_LONGOPS
SELECT ON SYS.V_$SESSTAT
SELECT ON SYS.V_$SQL
SELECT ON SYS.V_$SQL_PLAN
SELECT ON SYS.V_$SQL_PLAN_STATISTICS_ALL
SELECT ON SYS.V_$STATNAME
SELECT ON SYS.V_$SYSTEM_EVENT
```

The data owner additionally has DELETE, INSERT, SELECT, UPDATE and EXECUTE privileges to objects owned by the SimCorp Dimension system owner (SCSYS) and vice versa.

The data owner will also be granted DELETE, INSERT, SELECT, UPDATE on tables and EXECUTE on packages owned by Data Extractor schemas, and EXECUTE on packages owned by the Communication Server queue schema. These object privileges will be given at the time of the creation of the objects.

### 7.11.5 SCSYS Privileges

#### 7.11.5.1 SCSYS System Privileges

The SimCorp Dimension system owner (SCSYS) will be given these system privileges:

```
ALTER SESSION
CREATE EVALUATION CONTEXT
CREATE JOB
CREATE RULE
CREATE RULE SET
CREATE PROCEDURE
CREATE SEQUENCE
CREATE SESSION
CREATE TABLE
CREATE TRIGGER
CREATE TYPE
CREATE VIEW
MANAGE SCHEDULER
RESUMABLE
```

#### 7.11.5.2 SCSYS Object Privileges

The SimCorp Dimension system owner (SCSYS) will be given these object privileges:

```
EXECUTE ON SYS.DBMS_APPLICATION_INFO
EXECUTE ON SYS.DBMS_DB_VERSION
EXECUTE ON SYS.DBMS_LOB
EXECUTE ON SYS.DBMS_LOCK
EXECUTE ON SYS.DBMS_METADATA
EXECUTE ON SYS.DBMS_OUTPUT
EXECUTE ON SYS.DBMS_RLS
EXECUTE ON SYS.DBMS_SCHEDULER
EXECUTE ON SYS.DBMS_SESSION
EXECUTE ON SYS.DBMS_SQL
EXECUTE ON SYS.DBMS_STATS
EXECUTE ON SYS.DBMS_UTILITY
SELECT ON SYS.V$OBJECT_USAGE
SELECT ON SYS.V_$INSTANCE
SELECT ON SYS.V_$OPTION
SELECT ON SYS.V_$PARAMETER
SELECT ON SYS.V_$SESSSTAT
SELECT ON SYS.V_$STATNAME
READ ON DIRECTORY SCDXMLDIR WITH GRANT OPTION
```

The system owner additionally has DELETE, INSERT, SELECT, UPDATE and EXECUTE privileges to objects owned by the SimCorp Dimension data owner (SCDAT) and vice versa.

### 7.11.6 SCTRD Privileges

#### 7.11.6.1 SCTRD System Privileges

The SimCorp Dimension Order Manager owner (SCTRD) will be given these system privileges:

```
GRANT ALTER USER
GRANT CHANGE NOTIFICATION WITH ADMIN OPTION
GRANT CREATE PROCEDURE
GRANT CREATE SEQUENCE
GRANT CREATE SESSION
GRANT CREATE TABLE
GRANT CREATE TRIGGER
GRANT CREATE VIEW
```

#### 7.11.6.2 SCTRD Object Privileges

The SimCorp Dimension Order Manager owner (SCTRD) will be given these object privileges:

```
GRANT EXECUTE ON SYS.DBMS_UTILITY
```

## 7.12 Installation and Upgrade Privileges

As described in section 5.1 “Installation and Upgrade Considerations”, installations and upgrades require a number of database privileges to be present for the install/upgrade user. These are listed below.

**Note** The upgrade media provides scripts to grant the privileges.

### 7.12.1 System Privileges

```
ALTER ANY ROLE
ALTER PROFILE WITH ADMIN OPTION
ALTER SESSION WITH ADMIN OPTION
ALTER TABLESPACE
ALTER USER WITH ADMIN OPTION
ANALYZE ANY WITH ADMIN OPTION
CHANGE NOTIFICATION WITH ADMIN OPTION
CREATE ANY CONTEXT WITH ADMIN OPTION
CREATE ANY DIRECTORY WITH ADMIN OPTION
CREATE DATABASE LINK WITH ADMIN OPTION
CREATE EVALUATION CONTEXT WITH ADMIN OPTION
CREATE JOB WITH ADMIN OPTION
CREATE PROCEDURE WITH ADMIN OPTION
CREATE PROFILE
CREATE ROLE WITH ADMIN OPTION
CREATE RULE WITH ADMIN OPTION
CREATE RULE SET WITH ADMIN OPTION
CREATE SEQUENCE WITH ADMIN OPTION
CREATE SESSION WITH ADMIN OPTION
CREATE SYNONYM WITH ADMIN OPTION
CREATE TABLE WITH ADMIN OPTION
CREATE TABLESPACE
CREATE TRIGGER WITH ADMIN OPTION
CREATE TYPE WITH ADMIN OPTION
CREATE USER WITH ADMIN OPTION
CREATE VIEW WITH ADMIN OPTION
DEBUG CONNECT SESSION WITH ADMIN OPTION
DROP ANY DIRECTORY WITH ADMIN OPTION
DROP TABLESPACE
DROP USER WITH ADMIN OPTION
EXECUTE ANY PROCEDURE
EXEMPT ACCESS POLICY WITH ADMIN OPTION
GRANT ANY OBJECT PRIVILEGE
GRANT ANY ROLE
MANAGE ANY QUEUE WITH ADMIN OPTION
MANAGE SCHEDULER WITH ADMIN OPTION
RESUMABLE WITH ADMIN OPTION
```

And additionally, when upgrading an ASP installation:

```
EXEMPT ACCESS POLICY WITH ADMIN OPTION
```

### 7.12.2 Object Privileges

```
EXECUTE ON DBMS_APPLICATION_INFO WITH GRANT OPTION
EXECUTE ON DBMS_AQ WITH GRANT OPTION
EXECUTE ON DBMS_AQADM WITH GRANT OPTION
EXECUTE ON DBMS_DB_VERSION WITH GRANT OPTION
EXECUTE ON DBMS_JOB WITH GRANT OPTION
EXECUTE ON DBMS_LOB WITH GRANT OPTION
EXECUTE ON DBMS_LOCK WITH GRANT OPTION
EXECUTE ON DBMS_METADATA WITH GRANT OPTION
EXECUTE ON DBMS_OUTPUT WITH GRANT OPTION
EXECUTE ON DBMS_RLS WITH GRANT OPTION
EXECUTE ON DBMS_SCHEDULER WITH GRANT OPTION
EXECUTE ON DBMS_SESSION WITH GRANT OPTION
EXECUTE ON DBMS_SQL WITH GRANT OPTION
EXECUTE ON DBMS_STATS WITH GRANT OPTION
EXECUTE ON DBMS_SYSTEM WITH GRANT OPTION
EXECUTE ON DBMS_UTILITY WITH GRANT OPTION
EXECUTE ON DBMS_XPLAN WITH GRANT OPTION
EXECUTE ON UTL_FILE WITH GRANT OPTION
SELECT ON ALL_TABLES
SELECT ON DBA_AUDIT_SESSION WITH GRANT OPTION
SELECT ON DBA_CONTEXT
SELECT ON DBA_DATA_FILES
SELECT ON DBA_PROFILES
SELECT ON DBA_ROLES
SELECT ON DBA_ROLE_PRIVS WITH GRANT OPTION
SELECT ON DBA_SCHEDULER_JOBS WITH GRANT OPTION
SELECT ON DBA_SCHEDULER_WINDOWS WITH GRANT OPTION
```

```
SELECT ON DBA_SCHEDULER_WINGROUP_MEMBERS WITH GRANT OPTION
SELECT ON DBA_SEGMENTS
SELECT ON DBA_SYS_PRIVS
SELECT ON DBA_TABLESPACES
SELECT ON DBA_TAB_PRIVS
SELECT ON DBA_TEMP_FILES
SELECT ON DBA_TS_QUOTAS
SELECT ON DBA_USERS
SELECT ON GV_$ACTIVE_SERVICES WITH GRANT OPTION
SELECT ON GV_$DATABASE WITH GRANT OPTION
SELECT ON GV_$DATAFILE
SELECT ON GV_$INSTANCE WITH GRANT OPTION
SELECT ON GV_$LOCK WITH GRANT OPTION
SELECT ON GV_$PARAMETER WITH GRANT OPTION
SELECT ON GV_$PROCESS
SELECT ON GV_$SERVICEMETRIC WITH GRANT OPTION
SELECT ON GV_$SESSION WITH GRANT OPTION
SELECT ON GV_$SESSION_LONGOPS WITH GRANT OPTION
SELECT ON GV_$SESSTAT WITH GRANT OPTION
SELECT ON GV_$SESS_IO
SELECT ON GV_$SQL WITH GRANT OPTION
SELECT ON GV_$SQL_PLAN WITH GRANT OPTION
SELECT ON GV_$SQL_PLAN_STATISTICS_ALL WITH GRANT OPTION
SELECT ON GV_$STATNAME WITH GRANT OPTION
SELECT ON GV_$TABLESPACE
SELECT ON V$OBJECT_USAGE WITH GRANT OPTION
SELECT ON V_$DATABASE WITH GRANT OPTION
SELECT ON V_$DATAFILE
SELECT ON V_$INSTANCE WITH GRANT OPTION
SELECT ON V_$LOCK WITH GRANT OPTION
SELECT ON V_$OPTION WITH GRANT OPTION
SELECT ON V_$PARAMETER WITH GRANT OPTION
SELECT ON V_$PROCESS
SELECT ON V_$SESSION WITH GRANT OPTION
SELECT ON V_$SESSION_LONGOPS WITH GRANT OPTION
SELECT ON V_$SESSTAT WITH GRANT OPTION
SELECT ON V_$SESS_IO
SELECT ON V_$SQL WITH GRANT OPTION
SELECT ON V_$SQL_PLAN WITH GRANT OPTION
SELECT ON V_$SQL_PLAN_STATISTICS_ALL WITH GRANT OPTION
SELECT ON V_$STATNAME WITH GRANT OPTION
SELECT ON V_$SYSTEM_EVENT WITH GRANT OPTION
SELECT ON V_$TABLESPACE
```

Additionally, MANAGE_ANY must be granted. In order to do this, the following procedure call must be made, where &GRANTEE is the user to whom the privileges are given:

```
DBMS_AQADM.GRANT_SYSTEM_PRIVILEGE(privilege=>'MANAGE_ANY', grantee=>
&GRANTEE, admin_option=>TRUE)
```

### 7.12.3 Privileges for EDA and ASP

If EDA or ASP is installed the following privileges are needed too:

```
EXEMPT ACCESS POLICY WITH ADMIN OPTION
CREATE ANY CONTEXT WITH ADMIN OPTION (only in ASP installations)
```

## 7.13 Server Types

Depending on the system configuration, the following application server types exist in SimCorp Dimension:

- Audit Translation Server
- Batch Server
- Business Service Host Server
- Calculation Server
- Client Reporting Server
- Communication Server
- Corporate Actions Elections Synchronization Server
- Download Real-Time Market Data Server
- Event Calendar Server
- Limit Server
- Market Data Validation Server
- Message Queue Server
- MQ Client
- Order Cache Server
- Order Manager Message Server
- Pricing and Key Ratios Server
- Real-Time Server
- Reporting data jobs server
- Service Host Server
- STP Server

- Front Office Holding Server
- Group code and composite rating update server
- WM Server

Each type has its own task/role. In the sections below an overview of the different roles for each server type is provided. For a more detailed description of the business service provided by the servers, please refer to documentation help in the actual business area of the system.

**Note** Some server types have additional third party software and configuration prerequisites. If the server is started from SimCorp Dimension installed locally these prerequisites must be met, just the same as if the server was started from the network installation. Where relevant please refer to the documentation on the specific server types.

| Suggested Reading | For more Information on |
|---|---|
| Section 3.2.2 “SimCorp Dimension Application Servers” | The system environment requirements for SimCorp Dimension application servers |
| Section 4.2.3 “Communication Server” | Configuration of the Communication Server |
| Section 4.2.4 “Service Host Server” | Configuration of the Service Host server |
| Section 6.3.3 “Monitoring Servers” | Monitoring application servers |
| Section 6.6 “Distributed processing” | Several tasks around executing SimCorp Dimension, including application servers |

### 7.13.1 Audit Translation Server

Translates dates in the audit tables (AUDITMASTER and AUDITDETAILS) from internal format to external format (AUDITMASTEREXT and AUDITDETAILSEXT). These data are used to speed up the process of viewing and archiving audit data. Please see ***Archiving*** User Manual for more detailed information.

### 7.13.2 Batch Server

The batch server will execute batch jobs from the batch job queue.

The batch job queue can be monitored internally from the application using the task **MAINTENANCE** > **BATCH JOBS** > **Batch Queue Monitor,** or externally by querying the table BATCHQUEUE or using the PL/SQL package BATCHQUEUE_PKG.

The PL/SQL package gives access to a number of different tasks, such as **QueueExists**, **JobExists** and **JobStatusGet**. For further information see the package definition.

By using the package no maintenance of own SQL is needed, since if the batch queue is changed (for instance with new status levels or with new or renamed columns) the PL/SQL package will be changed as well and, if possible, be backward compatible. If instead own SQL for querying the BATCHQUEUE table has been made, these would need to be updated.

### 7.13.3 Business Service Host Server

The Business Service Host Server is used for processing cash flow services and Trade processing dashboard services. The Service types are called:

- Forecast cash flow service
- Trade processing dashboard - CTM service
- Trade processing dashboard - Match service
- Trade processing dashboard - STP service
- Trade processing dashboard - SWIFT service
- Trade processing dashboard - Transactions service

### 7.13.4 Calculation Server

This makes it possible to perform calculations on a server which allows the user to use the client for other tasks. If possible, load balancing will be used. The calculation server can perform a number of different calculations using the following Service types:

- Australian CGT service
- Calculation segment events service
- Cash bucket synchronisation service
- Collateral manager autoallocation service
- Compliance historical calculation service
- Create transaction service
- DPG pool data service
- Data extraction service
- Front office modelling calculation service
- Fund events service
- Fund figures service
- Index replication test calculation service
- Investment structure events service
- Legal reporting service
- Limit calculation service
- Performance calculation service
- Performance measurement service
- Performance report calculation service
- Portfolio calculation service
- Portfolio events service
- Portfolio figures service
- Portfolio group events service
- Prepare front office benchmarks service
- Rebalancing service
- Report execution service
- Risk measurement service

### 7.13.5 Client Reporting Server

The Client Reporting Server is used for processing of Report Book Manager jobs including client reports and communication with the Coric components. The server is part of the **REPORT BOOK MANAGER** module.

### 7.13.6 Communication Server

The Communication Server processes messages to and from SimCorp Dimension. The messages are passed internally in SimCorp Dimension using Oracle Streams Advanced Queuing. Please refer to section 4.2.3 “Communication Server” for more information.

### 7.13.7 Corporate Actions Elections Synchronization Server

The Synchronization Server is a server that monitors any changes in holding with respect to imported corporate action notifications and updates the Event Calendar flows accordingly, that is, appends new nodes for new holdings with respect to Event calendar flow definitions, closes nodes for holdings that are extinct (for instance: sold), etc.

Corporate action notifications are imported through SWIFT messages.

The server can be configured to run with predefined intervals.

### 7.13.8 Download Real-Time Market Data Server

The Download Real-Time Market Server downloads data from specified external provider into the SimCorp Dimension. In addition it can be configured to also run and use real-time server services independently of the real-time market data server. See also 7.13.19 “Real-Time Server”.

### 7.13.9 Event Calendar Server

The Event Calendar Server is used to send email notifications to recipients depending on Event Calendar flows in SimCorp Dimension.

### 7.13.10 Front Office Holding Server

Synchronizes Front Office holdings tables with SimCorp Dimension Holdings. The front office holdings are used by the ‘Asset Manager’, ‘Compliance Manager’ and the ‘Compliance Engine'.

### 7.13.11 Group code and composite rating update server

The Group code and composite rating update server updates Security Group Code values saved on static data when static data has been saved or updated.

### 7.13.12 Limit Server

Monitors limits and decides if it is time to calculate these. If calculation servers are available these can be utilised for the calculations.

Please be aware that the workspace required for a limit server is dependent on the number of limits and the number of positions in each limit. In installations with a larger number of limits and/or positions it is recommended to increase the initial available workspace for the limit server, for instance to 300 MB or 500 MB. When executing limit calculations on clients, an increased workspace compared to the default may also be needed, especially in relation to simulations where you do not have the possibility to execute the calculations on a server. Please refer to section 7.16 “Memory Management” for information on how to change the workspace size.

### 7.13.13 Market Data Validation Server

This server is used for validating market data for funds. When the data has been successfully validated the server will create the corresponding fund events.

### 7.13.14 Message Queue Server

The Message Queue Server process data in message queue tables and is the engine behind SimCorp Dimension Deal Capture

### 7.13.15 MQ Client

The MQ Client processes messages to and from SimCorp Dimension. The service takes messages from IBM WebSphere MQ family and moves them to SimCorp Dimension’s message queue, and puts a message back on the WebSphere MQ queue when the messages have been processed.

### 7.13.16 Order Cache Server

The server pre-calculates orders to speed up the process of including orders, for example, in an analysis or a limit.

### 7.13.17 Order Manager Message Server

Used for Order Manager messaging in the Front Office applications. Provides the following **service types**:

- Message execution service
- Message relation service
- Message retrieval service

### 7.13.18 Pricing and Key Ratios Server

This server starts a pricing and key ratio (PKR) service defined in the monitor segment on the PKR service. The server pre-calculates unit price for the securities/OTC contracts when database changes are made. Price is scaled to position size in the application (Asset Manager or Compliance Manager).

| Note | Required for Order Manager only if accrued interest is required for Fixed Income instruments, or if the Default Settlement date is required to be calculated. |
|---|---|

The PKR server is an optional service for use with the Portfolio Manager (PMA) and Portfolio Workbench (PWB). The PKR server is part of the Front Office applications Asset Manager, Compliance Manager and Compliance Engine.

Multiple PKR services can be defined with the same PKR definition as long as the monitor segment does not overlap.

The PKR service continuously monitors changes in the PRICES table and recalculates key ratios where necessary, and makes the updated data available to the subscribing applications.

### 7.13.19 Real-Time Server

The real-time server can have either one or both of the following **service types** enabled:

- Market data service
- Yield curve service

The real-time server connects and subscribes to real-time data for instruments for specified external providers. It then receives real-time updates and redistributes the real-time data to requesting clients.

### 7.13.20 Reporting data jobs server

Reporting Data Job Server is for processing jobs retrieving and storing data for Web Reporting and Data Warehouse purposes.

### 7.13.21 Service Host Server

The Service Host Server is hosting C# services. Please refer to 4.2.4 “Service Host Server” for information on configuration and 6.6.4 “Service Host” for information on executing a Service Host.

### 7.13.22 STP Server

The STP environment consists of a number of different services. In larger installations more instances of each **service type** may be needed.

| Service | Description |
|---|---|
| Aux. execute service | Executes auxiliary status jobs |
| Aux. match service | Executes auxiliary status match jobs |
| Calculation segment STP service | |
| Fin. Calc service | Lifts transaction status, either from low status to just below “Fin Calc” or from “Fin Calc” to max status |
| Fund STP service | Processes funds from the Funds STP Queue |
| Fund backdated event service | Releases backdated fund events to a Fund STP service, if available |
| Fund event simulation service | Releases simulation events to a Fund STP service, if available |
| Funds STP service | |
| Investment structure STP service | |
| Order aux. execute service | Executes auxiliary order status jobs |
| Order aux. match service | Executes auxiliary order status match jobs |
| Order generation service | Executes order generation jobs |
| Order price match service | Creates transactions from orders when needed prices exist. Only fund certificates are supported at the moment |
| Order status service | Lifts orders to status “Released” |
| Portfolio STP service | |
| Portfolio group STP service | |
| Receiver service | Receives messages from the outside world and translates these into something the transaction or aux. match server can use |
| Status service | Lifts transactions in status, either from low status to just below “Fin Calc”, or from just above “Fin Calc” to max status |
| Timer service | In the auxiliary status definition it’s possible to specify a “delay”. If a status service tries to rise status within this period the “Aux. status job pending” flag will be raised in the transaction queue. The Timer service will look for transaction service hosts with this flag raised, and reset the flag when it's time |
| Transaction security ID service | |
| Transaction service | Generates transactions from the messages received by the receiver server |

### 7.13.23 WM Server

Server used for integrating the WM pool into SimCorp Dimension. The integration consists of four **Service Types**:

- Import to pool service: Transfers data from the WM file to the WM data pool
- Solve dependencies service: Includes necessary underlying instruments, issuers, etc.
- Import from pool service: Transfers data from to WM pool to the SimCorp Dimension Database
- Data validation service: Validates the imported data

## 7.14 Service Host Server

The **SERVICE HOST SERVER** concept is based on hosting services under the .NET Framework. This section describes the technical requirements, configuration and execution of the SimCorp Dimension **SERVICE HOST SERVER**. Future plans involve allowing other SimCorp Dimension server types to run under the same framework. For short, this manual refers to the SimCorp Dimension **SERVICE HOST SERVER** simply as the **SERVICE HOST**.

Hosting is required to secure a stable and reliable execution of a service oriented software solution. The **SERVICE HOST** is such a solution and hosts application services like the **Pre-Trade Compliance Engine**. This server is hosting a number of services, for instance the **Compliance engine back end service** and the **Compliance engine front end service**. The interaction between client and server is done directly, not through the database which is otherwise the communication method used by the other SimCorp Dimension server types. The client interacts directly with front end service, which in turn interacts with the back end service.

The front end and back end services can be, but need not be, run in the same **SERVICE HOST**. This solution may be chosen for its simplicity in setup and monitoring, but in production systems for fault resilience reasons using separate hosts for the services may be preferred.

The following **SERVICE TYPE** can be used with Server Type **SERVICE HOST SERVER**

- Analytics service
- Compliance Order Manager Integration Service
- Compliance engine back end service
- Compliance engine front end service
- Compliance post-trade service
- Data sharing service
- Hosting server
- Order management - Management service
- Order management - Message bridge service
- Order management - Order service
- Server framework load test
- Trade status service

## 7.15 Server as Windows Service

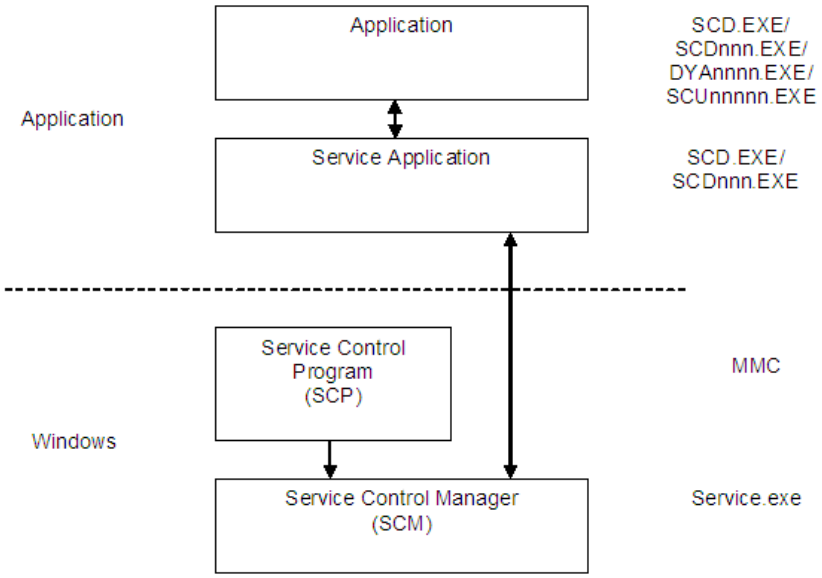
SimCorp Dimension application servers can be installed to run as a Windows service. Please refer to section 7.13 “Server Types” for a complete list of SimCorp Dimension application servers.

| Note | The interface programs used for connection to Deutsche Börse (scxetra.exe and sceurex.exe) cannot be run as Windows services. |
|---|---|

When running SimCorp Dimension as a service, please be aware of the issue stated in 6.6.2.3.1 “Insufficient Windows Resources”.

Four Windows components are required to run a SimCorp Dimension server as a service

- An application
- A service application
- A service control program (SCP)
- A service control manager (SCM)




### 7.15.1 Service Control Manager (SCM)

The SCM's executable file is \windows\system32\services.exe in Windows Server 2003 and Windows Server 2008. Similarly to most service processes this file runs as a Win32 console program. The Winlogon process starts the SCM early during the system boot. The SCM is responsible for starting and stopping as well as communication to/from the Service Application.

### 7.15.2 Service Control Program (SCP)

SCP is the program that controls the service start, stop, pause etc. Microsoft Management Console (MMC) is often used, from where it is possible to adjust many of the installed parameters for a given service.

### 7.15.3 Service Application

The Service Application is the application which receives commands from SCM such as starts, stop etc. When the application terminates, it communicates the result to the SCM. The Service Application starts the Application and establishes a communication. In SimCorp Dimension the Service Application functionality is placed in scd.exe and SCD###.EXE (where ‘# denotes a patch version specific number).

### 7.15.4 Application

The Application is the ‘real’ SimCorp Dimension application. This includes the executable files: scd.exe, scd###.exe, dya####.exe and scu#####.exe. When you are running a SimCorp Dimension server service, the application communicates with the Service Application and during start up the service status changes from “starting” to “started”.

When the service is shutdown, termination codes are reported and stored in the event log.

Try investigating the Windows **Task Manager** when SimCorp Dimension is running as a service. The normal processes: scd###.exe, dya####.exe and scu#####.exe are running. In addition to these, two extra processes, scd.exe, and scd###.exe are also running. The functionality for Service Application is placed here. If the service is installed for the Communication Server, you will in addition see a Mediator.exe process. If the service is installed for the MQ Client Server, then you will in addition see 4 processes: scmqgecl.exe, scmqgesv.exe, scmqpucl.exe and scmqpusv.exe.

### 7.15.5 Logging

Running SimCorp Dimension as a service places a number of entries in the Windows Event Log.

At normal start-up the SCM places two events in the Event Log, “starting” and “started”. At normal stop two other events are logged, “stop pending” and “service stopped”.

| | |
|---|---|
| **Note** | When a SimCorp Dimension server is started as a Windows Service a warning is logged in the Windows System Log, this is normal behaviour and should just be ignored. Example for a calculation server: *“A service process other than the one launched by the Service Control Manager connected when starting the SimCorp Dimension 5.4 PROD/Server: CALC_SRV13 service. The Service Control Manager launched process 3660 and process 2240 connected instead.”* If this service is configured to start under a debugger, this behaviour is expected. |

All services have the possibility to either return a windows system error or an application specific error code.

The Windows system errors are often related to the environment – missing network resource etc. A list of these error codes can be found in the technical Window documentation, for example at this address: http://msdn2.microsoft.com/en-us/library/ms681381.aspx.

When a service returns an application specific error code, the Windows system error code is set to 1066, which means: ‘The service has returned a service-specific error code.’

The application specific error codes are in SimCorp Dimension the error level. These are listed in section 7.2 “Error Levels / Exit Codes” and additional information on how to use them can be found in section 6.6.6 “Returning Error Levels”.

## 7.16 Memory Management

This section explains some terms and mechanisms regarding memory management in Windows environments running SimCorp Dimension.

First, a brief explanation of some of the terms used in Windows **Task Manager** and similar tools:

| | |
|---|---|
| **Working Set, WS, Mem Usage** | The part of the process which is loaded and “active” in physical memory. Working Set is a dynamic snapshot of what is active in memory, and is an inadequate indication of the potential memory usage of a process and inadequate to identify processes leaking memory. Try to look at Working Set before and after minimising or maximising a process such as Internet Explorer; it can change drastically. |

| | |
|---|---|
| **Virtual Size, VM, Virtual Memory** | The full address space footprint of the process. Not available in **Task Manager**. Sysinternal's **Process Explorer** refers it as Virtual Size, while the command line tool pslist.exe refers it as VM. |
| **Commit Size, VM Size, Private Bytes** | In **Task Manager** this means the private memory claimed by the process, that is, all the memory that cannot be shared with other processes. Private memory is mainly data allocated by the process, while shared memory is mainly all the executable modules (.exe, .dll etc.). Commit Size does not change as dynamically as Working Set (look at Commit Size during minimise / maximise). Commit Size (or Virtual Size) is a useful indication of the potential memory usage of a process and useful for identifying processes leaking memory. Note that the term 'Commit' refers to the required reservation on the Page File on disk, as this is used when private memory pages need to be swapped out, while executable code is normally paged from the original source (a local disk or a file server). |

The terms used may vary between different tools and different Windows versions.

### 7.16.1 Available memory versus addressable memory

With 64-bit Windows, addressable memory is virtually unlimited, so contrary to 32-bit Windows, all memory issues are about physical memory (RAM), not about addressable memory (address space). When physical memory shortage is identified, the largest consumers can be identified by checking the processes with the largest Commit Size (or Virtual Size). Refer to 6.3.5 "Strategy for handling Memory Shortage" for more.

### 7.16.2 SimCorp Dimension Memory Consumers

The sysinternals tool vmmap.exe can be used to get an overview of what the total memory consumption of a process consists of. For the main SimCorp Dimension process dya....exe, there are four major memory consumers and each of these consume a different type of memory. Note that Size includes reserved address space, which implies no resource footprint in 64 bit at all, unlike for 32 bit, where address space was the primary bottleneck resource. For each memory type in the upper summary pane, double-click and see the details in the lower pane, where it makes sense to sort by Size to see the largest first. If Size and Committed differ much, drill down in details and check for reserved chunks (which imply no memory footprint on the system). The four major memory consumers in dya....exe can be mapped to these memory Types:

| | |
|---|---|
| **Image** | Executable code. Details about what exact code can be seen in the lower pane |
| **Private Ddata** | The largest of these is typically the max. workspace. Most often, there is a large Reserved chunk as part of this, meaning that only part of the max. Workspace is in use. This can be seen by drilling into the chunk (click on the leftmost +). |
| **Managed Heap** | This is .NET memory. Very often, this also has some large Reserved chunks up front (right after startup). More Reserved memory gets committed when running .NET functionality like Asset Manager. |
| **Heap** | Most of these are allocations made by the Database interface getting and bringing data to / from the application. |

# 8 Known Issues

This chapter contains information on a variety of issues relating to third party software encountered when running SimCorp Dimension, roughly ordered by the main third software product involved.

Usually only issues relevant for the current release of SimCorp Dimension are listed. Updates regarding older releases will instead be communicated elsewhere. Please refer to section 1.6 “Referenced and Suggested Documentation” for suggested reading.

## 8.1 Adobe Reader

### 8.1.1 SimCorp Dimension Unable to Open PDF Formatted Manuals

Please be aware that if a higher version of Adobe Reader than the one supported by SimCorp Dimension is installed on the PC used, it may not be possible to open SimCorp Dimension manuals generated in PDF. Please refer to section 3.2.1 “SimCorp Dimension Clients” for the supported version of Adobe Reader.

## 8.2 Anti-Virus

Dyalog Support Service has reported that Norton Anti-Virus software may cause conflicts with Dyalog component file system. It appears that while Norton Anti-Virus is scanning the disk, it briefly opens each file in DENY_WRITE mode. This can cause severe disruption to SimCorp Dimension.

| | |
|---|---|
| **Note** | Please allow Norton Anti-Virus (and other anti-virus programs) to skip files with a .DCF extension. Likewise, the SCD.LOG and MUCS.LOG files must be excluded from the scan. |

Errors when printing reports have been reported on Windows servers with hyper threading enabled and where CA eTrust Anti-Virus is used. In these cases the errors have been limited by changing the anti-virus configuration to ignore the “dya*.exe”-process (for example dya1012lr.exe). Please note that the actual name of the process is determined by the version and patch level of the actual SimCorp Dimension installation.

Also it has been reported that disabling Trend Micro Office Scan helped solve the following issues:

- The SimCorp Dimension patching process hangs and then dies, reporting that it can’t find the .pat file that it actually started the patching with
- Manually unzipping the patch file took an amazing amount of time considering the size
- Trying to access online help in the installation doesn’t work
- Navigating to a folder containing .chm file(s) using Windows Explorer crashed workstation
- SimCorp Dimension upgrade process crashes during extraction of the compiled help file scd.chm

In addition please refer to section 6.2.3 “Virus Scan”.

## 8.3 Blat

### 8.3.1 Compatibility Issue on Windows 2008 R2

Running Blat.exe on Windows Server 2008 R2 has shown instability where the following error message occurs:

*A Win32 command line email tool has stopped working*

Setting the compatibility mode for Blat.exe to Windows Server 2003 solves the problem and allows Blat.exe to execute correctly.

## 8.4 Citrix Presentation Server/XenApp/Terminal Services

### 8.4.1 Using DDE Links

Citrix does not support DDE links directly from server to client side application.

| | |
|---|---|
| **Note** | If the DDE functionality of SimCorp Dimension is to be used together with MS Excel, both the SimCorp Dimension client and MS Excel must be installed and used on the Citrix server. |

However, it is possible to save the MS Excel document directly on the client's hard disk.

### 8.4.2 Short Keys in SimCorp Dimension May Have a Different Function

Please be aware when running SimCorp Dimension using Citrix/Terminal Services, Short Keys may have been defined on the Citrix/Terminal server to have another function than the one documented in SimCorp Dimension. For example, in SimCorp Dimension the combination shift+F1 normally provides field help; but on Citrix this short key combination may be defined to open the Windows **Start** menu.

| | |
|---|---|
| **Note** | Short keys defined on a Citrix/Terminal server overwrite the definition provided in SimCorp Dimension |

Please contact your Citrix Administrator for a redefinition of the short key function on your Citrix/Terminal server.

### 8.4.3 SimCorp Dimension Crashes without Normal Error Processing

If using Citrix management applications such as AppGuard, AppSense etc. you must ensure that all files delivered in the SimCorp Dimension installation are permitted for execution on the Citrix server. If SimCorp Dimension executable files are blocked it can cause serious instability and session crashes. In some cases the SimCorp Dimension session just disappears and the crashes can be hard to troubleshoot as no error is logged by the application. A detailed function trace using "Toggle Trace" may help determining when the application stops without standard error handling.

Please also refer to section 7.8.21.1 "Generated DLL in %TEMP% sub-folders".

### 8.4.4 SimCorp Dimension Freeze when printing from Citrix XenApp 6.5 at Windows Server 2008 R2

Due to an error in the Citrix Software SimCorp Dimension can freeze when print using Crystal Report is executed. First print executes ok, but next time a print is executed the session freeze and has to be killed. The following hotfix from Citrix solved the issue XA650R01W2K8R2X64026. The hotfix is now part of Hotfix Rollup Pack 2 Beta for Citrix 6.5 for Microsoft Windows Server 2008 R2 dated May 1st 2013.

## 8.5 IBM WebSphere MQ

### 8.5.1 Restriction on User Name Length When Using WebSphere MQ Client

If the Windows user running the WebSphere MQ client process (for MQ Client or Communication Server) has an account name longer than 12 characters, it is not possible to connect the Queue Manager. Therefore, please ensure Windows user names are shorter than 12 characters if the users are going to run MQ Client or Communication Server.

## 8.6 Microsoft Internet Explorer

### 8.6.1 IE Extended Security Requires Supervision of Bloomberg Communication Server

When running the Bloomberg communication server the Internet Explorer extended security must be disabled in order to run the server unsupervised: otherwise the IE extended security causes a popup window every time the Bloomberg communication server is calling another executable, for instance des.exe, as the source folder is being treated as belonging to the internet zone instead of the intranet zone.

## 8.7 Microsoft Outlook

### 8.7.1 Outlook Email Security Update

In earlier versions of Outlook, Microsoft implemented an “E-mail Security Update” which is still relevant.

Apart from restrictions on attachments (many file extensions are not allowed by default), a new major restriction was that automatic sending of mails is blocked by a “security” pop up window asking a question like:

*A program is trying to automatically send e-mails on your behalf. Do you want to allow this?*

SimCorp Dimension attempts to send e-mails automatically, just like many other applications on the Windows platform. All of these applications will experience this message.

A very good resource for detailed information about this issue is

http://www.slipstick.com/outlook/esecup.htm and has links to many places, including Microsoft.

In Outlook 2002 (version 10) and higher it is possible to disable it. In order to do this, follow the link “administrators can customise the security settings” on the “slipstick” site mentioned above. Note that even if not using Outlook, this “feature” is present in the MAPI layer.

There have been attempts to automatically answer Yes to the pop up (see, for example, http://www.express-soft.com/mailmate/clickyes.html), but a known limitation is that it does not work when a PC is locked (or not logged in), which is exactly the situation where it is most needed.

### 8.7.2 Mail Not Saved in Sent Items

When using the Email Information to SimCorp function from within SimCorp Dimension under certain circumstances no copy of the mail is saved under Sent Items in Outlook 2003. If no connection to Exchange is available there might briefly appear a mail in the outbox, but when the mail is sent it does not appear in Sent Items.

This error has been tracked down to the Exchange Cache function (set in Email Account Options). If this is disabled, the mail is saved in Sent items.

## 8.8 Microsoft Windows

### 8.8.1 Problems When Many Windows Are Open

SimCorp have seen situations where the fact, that many windows were open, gave cause to problems with various versions of Microsoft Windows - when this happens it is most often a matter of adjusting the amount of available resources. Please refer to section 6.6.2.3.1 “Insufficient Windows Resources” for a more detailed explanation and some hints on what to do.

### 8.8.2 Avoid Many Files in Single Folders on the File Server

Microsoft Windows in general performs poorly when folders with many files (several thousand or more) are accessed, especially when access is done over a network. This can be the case for certain SimCorp Dimension folders (for example the Communication Server folders) when regular cleanup is omitted. It cannot only degrade performance for a single SimCorp Dimension server, but also degrade disc performance on the file server to a degree where it fails to respond to other requests. In extreme cases, it has been observed that reading SimCorp Dimension program files during execution of SimCorp Dimension by other servers has failed (leading to “in page io” error 0xC0000006 crashes).

General ways to avoid many files in folders:

- Turn off excess logging after troubleshooting sessions have ended.
- Configure folder structures with respect to this issue if possible, for instance by keeping files only for a certain period of time in one folder.
- Implement regular cleanup procedures. Remove or move files away from active folders.
- Monitor folder structures for many files.
- Place folders with potentially many files on a local disk if possible, or on a separate file server.

### 8.8.3 Windows Marks a SimCorp Dimension Window as: (Not Responding)

Please be aware that Windows Repaint (the process which “draws” a SimCorp Dimension window in the Windows environment) cannot update the screen during a long running SQL query or a long running CPU operation on the host. This can appear to the end user as if SimCorp Dimension is hanging.

If you have a “(not responding)” window, for instance from a server, batch job group or the like, then first query the database to see if the corresponding session in the database is active and busy, instead of 'killing' the session. This can be done by querying the Oracle data dictionary view V$SESSION_WAIT, and establish that the related session is waiting on 'busy' events, rather than an 'idle' event, such as for example “SQL*Net message from client”.

You can also check if the CPU usage is high on the local host running the client. Then the window is reported “(not responding)” because the screen cannot be refreshed.

### 8.8.4 SimCorp Dimension Servers Need Restart After File Server Crash

Please be aware that if a crash of the file server housing the SimCorp Dimension application files has occurred or if the file server for other reasons has been booted, the MUCS and other SimCorp Dimension servers/services may appear in Windows as still running. However, the servers/services will not be functioning. The servers/services should be restarted when the file server is online again. It is recommended that all

SimCorp Dimension sessions (inclusive MUCS and servers) are closed prior to the file server, if this is being shut down in a planned action.

### 8.8.5 Unable to start MUCS as a service

An error message can occur with a warning message “Windows could not start the SimCorp Dimension 5.4 <servername>/Server:Mucs service on Local Computer Error2: The system cannot find the file specified.” This covers that there is a time and/or date difference between the client and server. The error message can be seen if the MUCS is started as a service from a command line.

Further information can be seen using the following link: http://social.msdn.microsoft.com/Forums/en-US/velocity/thread/aa171d8a-ae10-41dd-8f6f-e7ddd826f8a8.

### 8.8.6 Script Error When Opening Online Help File

| | |
|---|---|
| **Note** | The following error relates to the documentation system present in SimCorp Dimension before version 5.3. |

A VBScript error:

*Scripting.FileSystemObject cannot be created when loading company notes*

may occur in some systems when opening online help file. This is because the company notes in the help file requires the ActiveX object Scripting.FileSystemObject but the ActiveX component is disabled in the system.

To solve the problem, please try to set “Initialize and script ActiveX controls not marked as safe, and enable this setting” in Internet Explorer security settings under ActiveX controls and plug-ins.

A special version of the help file without support for Company Notes has been made and can be obtained from SimCorp on request.

| | |
|---|---|
| **Note** | This error relates to the documentation system present in SimCorp Dimension before version 5.3. |

### 8.8.7 Additional Security Setting When Running Communication Server

We have found that the security setting “Allow log on through Terminal Services” must be enabled for “Remote Desktop Users” in order to run mediator.exe as a remote session on a Windows Server 2003; otherwise errors will occur when starting the Communication Server with scheduling software.

### 8.8.8 Notification when executing Align Objects

An update of Align Objects (see: 4.1.4.2 Align Objects) includes an extraction of files performed by a self extracting *.exe file. Thereafter setup.sql is executed. The extraction itself might cause the Windows User Access Control (UAC) dialog to show, requesting administration privileges to run the application.

Notice that this may be caused by a policy, or simply because the process uses ‘Setup’ as part of the filename(s) being executed

### 8.8.9 Internet Explorer Enhanced Security Configuration

SimCorp Dimension and the Communication Server may report that the system could not start with the error message: “...has failed. Please check that .NET Security Policy is set to FullTrust.” When you then verify the settings you find they are correct if you verify using CasPol.exe.

The problem relates to a component default installed on Windows 2003 Server called “Internet Explorer Enhanced Security Configuration”. Currently the solution is to de-install this component.

### 8.8.10 Warning DllRegisterServer. Return: 2147647516 (0x8002801c)

When starting a SimCorp Dimension session on Windows Vista, an entry stating “[OCXInstall] Warning DllRegisterServer. Return: 2147647516 (0x8002801c)” is logged in the SCD.Log when the Windows user starting the session is not an administrator type user. This message is for information only and does not indicate errors.

### 8.8.11 Desktop Heap Limitations

The so called Desktop Heap has some static limits defined in the registry. Lack of desktop heap can cause various problems, such as programs simply not starting and bad behaviour in especially rich GUI programs. This can happen for both interactive and not-interactive mode execution. Please refer to 6.6.2.3.1 “Insufficient Windows Resources” for instructions to fix problems in either of these cases.

### 8.8.12 Using Windows Task Scheduler to run Batch Jobs.

When using the Windows Task Scheduler to run SimCorp Dimension batch jobs on platforms from Vista / 2008 and newer, the SCD -wait option has to be present. This is because the new Windows Task Manager considers the task done, when the first launched executable (scd.exe) is finished, even though it has children (scd....exe, dya...exe and scu...exe) that continue to live. The -wait option ensures that scd.exe stays put until the children are finished. Otherwise Windows makes a cleanup of the registry (a Windows / Application Event 1530 from User Profile Services appears), which results in a SimCorp Dimension failure.

### 8.8.13 Network Protocol Issue with File Server on Windows Server 2008

Windows Server 2008 (as well as Windows Vista and Windows 7) uses a newer version SMB 2.0 of the file sharing protocol known as SMB (Server Message Blocks), while older Windows versions use SMB 1.0. In order to be compatible with older Windows clients, the SMB 2.0 capable Windows versions also support SMB 1.0. While SMB 2.0 supposedly has some advantages, there also seems to be a number of drawbacks. For SimCorp Dimension, this may increase the risk of getting “in page io” crashes (error code C0000006). As long as Microsoft has not released any fix for this issue, the SimCorp recommended fix is to disable SMB 2.0 on the SimCorp Dimension file server. This will force all file sharing between Dimension clients and the file server to use SMB 1.0.

For Windows 8 and Server 2012, an even newer version SMB 3 has been introduced. Experience with SMB 3 (i.e. where both the file server and the “clients” are SMB 3 compliant) is inadequate with regard to “in page io” errors so far. If more than very rare “in page io” errors occur in such an SMB 3 environment, disabling SMB 3 is most probably a good idea. To avoid just falling back to SMB 2, both SMB 3 and SMB 2 should be disabled.

In order to disable SMB 2.0: On the Dimension file server (when running on Windows 2008 Server or newer), in the registry under `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\LanmanServer\Parameters`, add a new `DWORD` value named `SMB2` and set its value to `0`. Then reboot.

The internet (WWW) holds a lot of information on this subject – for instance, search for `SMB2 disable`.

### 8.8.14 SystemArgumentException: Parameter is not valid on Windows Server 2003

A program error with the text: “System.ArgumentException: Parameter is not valid” can occur when SimCorp Dimension is executed on Windows Server 2003.

The error details includes either System.Drawing.Font.GetHeight(Graphics graphics) or System.Drawing.Font.ToLogFont(object logFont, Graphics graphics).

The error has been recreated consistently when changing layout in the **COMPLIANCE MANAGER**. However, the error could also occur in other C# applications like **THE ASSET MANAGER** or even in the SimCorp Dimension Portal.

The problem occurs because the Segoe fonts are not installed in Windows 2003 Server R2. For Windows Vista and newer, the default font is the Segoe fonts.

The Microsoft MSDN article

http://msdn.microsoft.com/en-us/library/windows/desktop/aa511282.aspx

shows that the Segoe fonts are the default in Windows Vista and Windows 7.

The solution can be to export the Segoe font from e.g. a Windows 7 machine and install it on the Windows 2003 server.

### 8.8.15 Window not in Focus

Microsoft Windows’ ability to display several application windows at the same time leads to a need for defining how the focus should shift between these windows. This is normally being handled automatically in the background by Windows, but sometimes an application’s needs makes it necessary for it to drag focus to a particular Window – which can then confuse the automatics.

| | |
|---|---|
| **Definition** | A window in focus will receive the keyboard input and will usually be displayed in front of the other windows on the screen, this way being the window that the user interacts with right now. |

There are a number of identified situations where the Windows focus may be on a different window than expected by the SimCorp Dimension user. SimCorp is continuously working on finding solutions for such problems as they are being reported, but currently the following situations are unresolved:

- When multiple APL windows and at least one C# window are visible, setting the focus on one APL window will bring all other APL windows in front of all C# windows, regardless of where in the focus order the C# windows were previously found. This also changes the ALT+TAB order of the windows.
- When the portal and at least one APL window and at least one C# window are visible on the screen, closing the last APL window will change focus to the portal, no matter where in the focus order the portal is found.

### 8.8.16 .NET Based Windows not Shown in the Taskbar

In certain situations, when starting a .NET based window, the window is not shown as a Windows taskbar button. The window is still visible in the ALT+TAB and Task Manager lists.

When switching to a different application and then back to the .NET based windows in question, the taskbar button appears.

This issue has been seen in several versions of Microsoft Windows and seems to be due to an error in the Windows taskbar.

### 8.8.17 Windows 2008 R2: Navigation to the Webpage Was Cancelled

A problem has been seen on SimCorp Dimension running on Windows Server 2008 R2 when attempting to open the online help file. Instead of the online help, an error message is then shown:

*Navigation to the webpage was cancelled*

This is a security issue, which can be caused by a missing registry value:

`HKEY_LOCAL_MACHINE\Software\Microsoft\HTMLHelp\1.x\ItssRestrictions`

Here the key (`DWORD`) MaxAllowedZone must be set to `1`.

A Microsoft Knowledge Base article at http://support.microsoft.com/kb/896054/en-us describes the problem with regards to Windows Server 2003 and how to handle it, with details on why the problem exists. This should be relevant also for 2008 R2.

| | |
|---|---|
| **Note** | This error relates to the documentation system present in SimCorp Dimension before version 5.3. |

### 8.8.18 Sharing Violation during Patch Apply

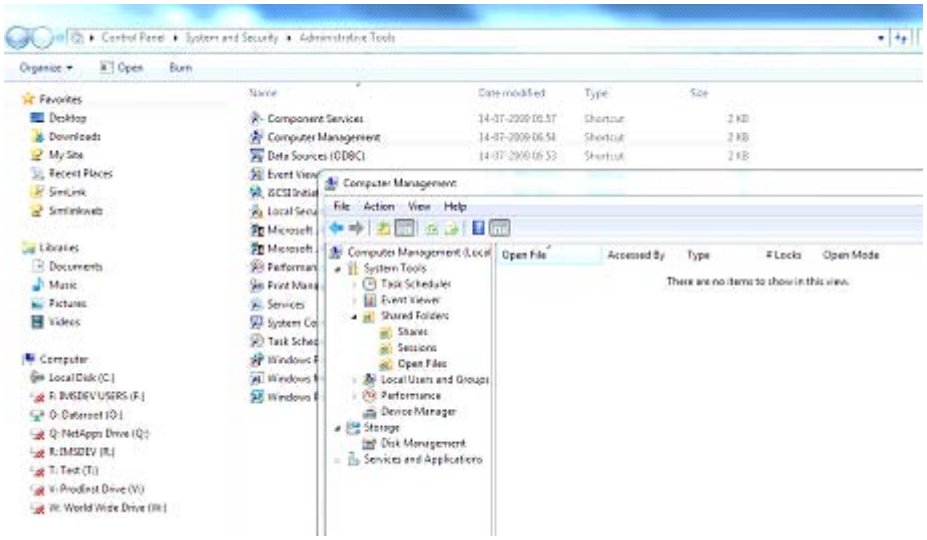
When applying patches on Windows 7 or Windows Server 2008, file locks may be reported:

*00:34:06 Applying of changes aborted due to an error*
*00:34:06 ¯88*
*00:34:06*
*00:34:06 Error copying*
*"\\dk01svt830\t8101104\Approved\50\TEST_BATCH9\Patches\SCeconNET.dll" to*
*"\\dk01svt830\t8101104\Approved\50\TEST_BATCH9\Bin\Debug\SCeconNET.dll"*
*00:34:06*
*00:34:06 nfXs[45] progFilesCopy[104] vcsChgApply_File[68] xsTrap[11] xsTrapLog[7] xsTrapFns[24] vcsChgApply_Files[26] xsTrap[11] xsTrapLogExt[9] xsTrapFns[22] vcsChgApply_Loop[114] xsTrap[11] xsTrapLogExt[9] vcsChgApplyExec[140] vcsChgApply[90] vcsChgApplyBatch[38] xsTrap[11] xsTrapLog[7] progStart[93]*
*00:34:06 32*
*00:34:06 20110712.023669*
*00:34:06*
*00:34:06 Sharing violation (error code: 32)*

Normally, when applying patches it has been possible to replace files on the fly but on Windows 7 and Windows 2008 Server this behaviour has changed. Microsoft recognises this changed behaviour but has for now rejected this to be an error with the explanation that this is how the system works.

If you encounter a file lock during **Patch Apply** ensure that no users have open files in the SimCorp Dimension folder before restarting **Patch Apply**. This is done by opening computer management on the file server.

1. Open Computer management – click on shared folders – click on Open files



2. Ensure that there aren't any open files – if there are open files mark them all and click **Close Session**
3. Start the patch apply again e.g. from the command line by using the following command:

```
"\\SimCorpDimensionRoot\Bin\scd.exe" -
job=patch;"\\SimCorpDimensionRoot\Patches\XXX_2011-07-19.exe" -
batch= -datpwd=XXX –trdpwd=xxx -nocud –wait
```

If you still have issues with files being locked after closing all open session, you should investigate if this is due to opportunistic file locking. Microsoft recommends disabling opportunistic file locks only if this is needed to solve a problem – and if there is no other way to solve that problem. Disabling opportunistic file locking brings performance limitations and breaks offline files functionality. It is only possible to disable opportunistic file locking for traditional SMB (SMB1) communication - you cannot turn off opportunistic locking for SMB2. See the official Microsoft documentation for further details: http://support.microsoft.com/default.aspx?scid=296264

### 8.8.19 Serious Performance Degradation if .NET Applications are hit by Physical Memory Shortages

Application performance in general can be seriously degraded if there is a physical memory shortage. Windows tries to compensate for lack of physical memory (RAM) by using the disk (page file), which is several orders of magnitude slower than RAM. The impact can be fairly acceptable if it hits memory that has been unused for a longer while. "Managed memory" in .NET is garbage collected regularly, which means that none of it is unused for a longer while. A shortage in physical memory will trigger physical memory starvation of other parts of memory than .NET memory first, plus a higher frequency of garbage collects (higher CPU usage), and eventually a complete degradation if parts of .NET memory are forced out of physical memory (to the page file on disk).

The only safe cure is to ensure, that all .NET memory is backed by physical memory, either by adding more RAM, reducing the memory requirements by configuring the .NET application or by reducing the memory load on the machine otherwise.

In order to monitor the real physical memory requirements for a given .NET application, various peak load situations should be monitored on a computer with plenty of physical memory. Useful performance counters to check the running application (typically dya...exe) with e.g. Windows Perfmon (or Sysinternals Process Explorer, which only shows snapshots):

- NET CLR Memory / Total committed Bytes. This is all Managed Memory.
- Process / Working Set and Working Set Peak. This is the physical memory footprint of the entire process, also including anything else than Managed Memory. If the application setup is indeed the maximum anticipated load, Working Set Peak is roughly the amount of physical memory that should be available for this application at all times.
    - If the memory requirement is very high, an alternative is of course to configure (e.g. the Asset Manager) to be less memory demanding.
    - If Total committed Bytes (Managed Memory) comes near or over the Working Set size, serious performance degradation is very likely. A snapshot check of this kind can easily be made in Process Explorer at any time a .NET application is performing very slowly.
- Other useful indicators are .NET CLR Memory / % Time in GC versus Process / % Processor Time. The first should not be more than 10% of the latter on average (meaning that no more than 10% of CPU should be used for .NET Garbage Collections). Otherwise it indicates that the process is subject to physical memory shortage.

## 8.9 Oracle RDBMS

### 8.9.1 ORA-00600, ORA-06544 and Oracle Streams Advanced Queuing

If ORA-600 and ORA-6544 errors are experienced in connection with using the Communication Server it might be a symptom of the Oracle data dictionary being corrupt. In this case Oracle's advice is to run the scripts %ORACLE_HOME%\rdbms\admin\catalog.sql and catproc.sql. The scripts have to be run logged in as SYS on the database in question "AS SYSDBA".

### 8.9.2 Redundant Connection for Communication Server

The Communication Server uses Oracle Streams Advanced Queuing for internal communication in SimCorp Dimension. The Communication Server Mediator component is a multithreaded .NET application, which manages a set of Oracle Advanced queues - one for each SimCorp Dimension port defined in the **Parameter Setup** form.

Part of the management includes checking if it is possible to connect to the database first and then creating the port afterwards. This process can take a few moments and it is possible that more than one database connection could be created for a single port. This connection will not be disposed of but kept in the connection pool and would thus give a DBA the impression that there is an extra redundant connection. By reloading the mediator application it can be observed that the number of connections also grows. The only way to empty the connection pool is to completely restart the Communication Server. All connections will be discarded and restarting the server will create a whole new connection pool.

### 8.9.3 TNS: Could not Resolve Service Name

Please be aware that if parentheses are included in the netroot folder name or path for SimCorp Dimension it will not be possible to start the installation and the following error message will be produced: “Logon failed - unable to connect ORA-12154: TNS: Could not resolve service name”. SimCorp Dimension does not support parentheses in the folder structure naming. Please refer to section 7.7 “Folder Structure”.

### 8.9.4 ORA-600[kzdukl], [59] When Installing Queues

If the above error is encountered when recreating the Communication Server user schema from **Database User Schemas Administration** task it is most likely because the Communication Server has not been stopped before attempting to recreate the schema.

If the problem persists please refer to My Oracle Support, note: 270336.1.

### 8.9.5 User Creation Fails When Password Verification Function Is Used

When a user is registered in SimCorp Dimension the user will be created in Oracle, if it does not already exist. If the user already exists in the database the Oracle user is associated with the SimCorp Dimension user role and the user’s password is expired, forcing the user to change password at next logon. No other changes are made to the Oracle account in that case.

When SimCorp Dimension creates the user in the database, the user is created with the password the same as the username, but also with the account expired, so that the user will be prompted to change password at first login. This means that the creation of the user will fail if the SimCorp Dimension userprofile has been associated with a password verification function, which specifies that passwords cannot be the same as the username, or otherwise violates the rules of the verification routine. To overcome this problem the feature “Default password” (in System Security Options) may be used. When this is activated, the system will prompt for a specific password when a user is created or passwords are reset in the “Users” window.

Special considerations should be taken when running SYNCDBUSERS, see 6.1.1 ”Copying Data”.

### 8.9.6 Reset Password Fails When Password Verification Function Is Used

When a system administrator from **MAINTENANCE** > **SYSTEM MAINTENANCE** > **User Administration** > **Users** uses the functions menu Reset Password the password is reset to the user’s user name. This means that the function fails if the SimCorp Dimension userprofile has been associated with a password verification function, which specifies that passwords cannot be the same as the username, or otherwise violates the rules of the verification routine.

The work-around is that the system administrator instead must use the **Reset Password** task in **MAINTENANCE** > **SYSTEM ACCESS** > **User Administration** > **Reset Password.** This allows the administrator to specify “Reset password to”. Alternatively: the feature “**Default password**” (in **System Security Options**) may be used. When this is activated, the system will prompt for a specific password when a user is created or passwords are reset in the “Users” window.

### 8.9.7 Communication Server Crashes With ORA-01460

The Communication Server may unexpectedly terminate and report the Oracle error “ORA-01460: unimplemented or unreasonable conversion requested” in the server log.

If this is experienced please look at the value for **Buffer size(bytes)/(maximum value)** on the **Communication Server** tab in **CONNECTIVITY** > **INTERFACES** > **Interface Settings** > **Interface Options**.

If this value is 32511 or above please reduce to a smaller value, max 32510.

The problem is that Oracle Advanced Queues used to communicate in the Communication Server cannot take messages larger than 32510 bytes in one chunk. If the buffer size is above 32510 bytes, then SimCorp Dimension will error with ORA-01460. By setting the maximal buffer size to 32510 it cuts up the messages so no single chunk will be larger than 32510 bytes.

The buffer size 32510 is derived from a fixed buffer size 32512 in the QUEUE_AQ Oracle package generated by SimCorp Dimension. The Oracle package requires one termination char reducing the max size to 32511 and internal functioning add one additional char before sending, thereby reducing the max size to 32510.

### 8.9.8 Misleading Wait Times Reported in Oracle When Using AMD

Wrong and misleading system performance figures can be reported by the Oracle Wait Interface when the database server is running on AMD Opteron™ processors with the Microsoft Windows Server 2003 operating system.

The problem is caused by the CPU driver that is installed with Microsoft Windows Server 2003. This driver needs to be updated to the latest from AMD.

### 8.9.9 Using DISM May Cause Application or System to Hang

This issue has been observed on database platform Sun Solaris running Dynamic Shared Memory (DISM) on OS version: SunOS dbsrv15 5.10 with kernel patch older than 118833-36.

The symptoms can be described as the instance “hanging” when starting an Oracle instance. After a little while, also other applications on the machine get irresponsive and in the end, the OS hangs and a reboot is necessary.

Sun has identified this as bug no. 6367660 “segspt_dismpagelock() loops indefinitely”. The bug is fixed in kernel patch no. 118833-36.

### 8.9.10 Parent Row Delete Does Not Influence Index Monitoring

When Oracle checks if it is ok to delete a parent row (that there are no children) it uses the foreign key index if present. However the index will not be marked as “Used”. If such an index is deleted Oracle will need a full table scan in order to check if it is safe to delete the parent.

### 8.9.11 Locked Statistics May Cause SimCorp Dimension to Fail

Please note that SimCorp Dimension patch, upgrade and the tasks **MAINTENANCE** > **SYSTEM MAINTENANCE** > **Database Administration** > **Verify Database Structure** and **Database Performance Maintenance** can fail if Oracle statistics on SimCorp Dimension tables or indexes have been locked.

### 8.9.12 Sequences Skipping Large Intervals

SimCorp Dimension is caching sequences in order to optimise performance when inserting new data. In certain situations if there is a large load (a high amount of parsing) on the Shared Pool, for example in an environment where many reports run concurrently with normal business transactions, the sequences may be aged out of Shared Pool frequently (pushed out of memory) and thereby resulting in gaps in the sequence values and the value numbers increasing fast.

The Oracle Shared Pool Advisor (SYS.V_$SHARED_POOL_ADVICE) can be used to determine an appropriate size for Shared Pool. It must be noted though, that Oracle on instances with a heavy load on the Shared Pool frequently advice sizes above the

reasonable limit within the available capacity. SimCorp Dimension normally benefits more from a higher DEFAULT cache (DB_CACHE_SIZE) than from an extreme Shared Pool. In such situations, to minimise the possibility of gaps in sequence numbers, these sequences can be marked so they are kept in memory and no longer candidates for being aged out of Shared Pool. This can be done by creating a procedure as shown in the example below and calling the procedure from a start-up trigger. The trigger could, for example, be made in the SYSTEM schema:

```
CREATE OR REPLACE PROCEDURE pinSeqOnStartupProc IS
   /* Pin the cached sequences to avoid unnecessary gaps in sequence
numbers due to cached sequences being aged out */
CURSOR seqNameCur IS
SELECT Sequence_Owner Owner,Sequence_Name Name
FROM   ALL_SEQUENCES
WHERE  Sequence_owner = 'SCDAT'
AND    Cache_Size > 1
AND    Last_Number > 50 * Cache_Size /* Only cache sequences that has
actually been used */
;
BEGIN
FOR seqCur IN seqNameCur LOOP
  SYS.Dbms_Shared_Pool.Keep(seqCur.Owner||'.'||seqCur.Name,'Q');
END LOOP;
END;
/
CREATE OR REPLACE TRIGGER pinSeqOnStartup
  AFTER STARTUP ON DATABASE
   /* Call procedure to pin the cached sequences to avoid unnecessary
gaps in sequence numbers due to cached sequences being aged out */
BEGIN
pinSeqOnStartupProc;
END;
/
```

`SCDAT` should be replaced by the relevant name of the SimCorp Dimension data owner where applicable.

### 8.9.13 Export utility (exp) in Oracle 11*g* R2 Does not Export Empty Tables

Be aware that the Export (exp) and Import (imp) utilities in Oracle 11*g* are no longer officially supported. You should use Datapump as your mean of importing and exporting.

The problem with the Export utility (exp) is related to the new Oracle 11*g* R2 feature called “deferred segment creation” and the fact that empty tables are not listed in dba_segments. Thus, the Export utility (exp) skips empty table segments by default meaning they are not exported at all, not even the DDL definition. This is not an issue if Oracle Datapump is used.

### 8.9.14 Missing Grants After Applying 11.2.0.3 Patch 16 (Windows platform)

Please be aware, when applying 11.2.0.3 patch 16 (Windows platform), that after execution of catwinbundle.sql, it is necessary to manually recreate the grants on DBMS_METADATA for the SimCorp Dimension data tables owner and system tables owner as described below. Oracle does not make it clear in the patch installation instructions that this grant will be lost when applying the patch.

- Logon in SQL*Plus or similar tool as user SYS.
- Execute the command: ‘grant execute on dbms_metadata to <scdat>, <scsys>;’
- Where <scdat > and <scsys> are the SimCorp Dimension data tables owner (`datowner`) and system tables owner (`sysowner`).

| **Note** | This is only related to environments where the database is on a Windows platform. |
|---|---|

### 8.9.15 SQLNet Trace Files Cannot Be Written To \bin\log\ Due to ADR

The Oracle 11*g* Instant Client have been seen to prevent SQLNet trace files from being output, a problem related to the 11*g* feature Automatic Diagnostics Reporting (ADR) Sqlnet.log file shows how SQLNet fails to create an ADR directory structure:

```
Create Relation ADR_CONTROL
Create Relation INC_METER_IMPT_DEF
Create Relation INC_METER_PK_IMPTS
Directory does not exist for read/write [C:\oracle\oracle10g\log]
[C:\oracle\oracle10g\log\diag]
```

SQLNet expects a known folder structure to be present, but the expected top level folder structure is not there or cannot be found (for instance because current folder on Windows is something else) and therefore SQLNet cannot add a `\diag` sub-folder to it.

A solution:

1. Leave ADR enabled within sqlnet.ora.
2. In addition, define ADR_BASE, for instance:
   `ADR_BASE=C:\oracle\oracle11g\NETWORK\log`
3. Connections now create the ADR repository structure in:
   `C:\oracle\oracle11g\NETWORK\log\oradiag_xyz\diag\clients\user_xyz\host_3809771380_11`.
4. SQLNet.log and trace files are output within the `trace\` sub-folder.

Please also refer to the Oracle 11*g* Net services Reference Guide at http://docs.oracle.com/cd/E11882_01/network.112/e10835.pdf for more information.

### 8.9.16 Data Files and Tables May Be Listed as Unrecoverable

Please be aware of Oracle bug 12411734: DATAFILES ARE LISTED AS UNRECOVERABLE WHEN COMPRESSION ADVISOR RUNS. This can cause Oracle reporting tools, such as, for instance, RMAN “report unrecoverable” to list tables and data files as unrecoverable. The bug is found in Oracle 11.2.0.1 and has at the time of writing not been fixed. One work-around is to set 'auto space advisor' to DISABLED. Please refer to My Oracle Support for more details.

### 8.9.17 ASH Emergency Flush May Cause Database Instance to Freeze

SimCorp has occasionally, during SimCorp Dimension installation/upgrade on Oracle 11.2.0.3 (and 11.2.0.2) on the Windows platform while utilising extensive CPU, seen that the instance has entered a ‘hung’ state, where the only solution has been to restart the database instance. The symptom has not been reproducible at will.

In these cases the following message has been observed in the alert log coinciding with the symptoms.

*“Active Session History (ASH) performed an emergency flush. This may mean that ASH is undersized. If emergency flushes are a recurring issue, you may consider increasing ASH size by setting the value of _ASH_SIZE to a sufficiently large value. ... “*

The message has been the only indicator and no other system messages generated.

Oracle Support has advised SimCorp to increase the ASH size to 2% of the SGA size.

*ASH size can be set to a higher value using the underscore parameter _ASH_SIZE: alter system set “_ASH_SIZE" to a higher value.*

The current size can be found, by running the following query:

```
Select total_size From v$ash_info;
```

SimCorp has not been able to reproduce the symptoms if `_ASH_SIZE` is raised above 2 % `SGA_TARGET`. E.g. if `SGA_TARGET =10G` then:

```
alter system set "_ASH_SIZE"= 214748365 scope=both;
```

If `MEMORY_TARGET` is used and `SGA_TARGET` is 0, then calculate 2% of `MEMORY_TARGET.`

The issue describe in this section has not been observed in daily operation, only seen during installation and upgrade of SimCorp Dimension. Therefore the `_ASH_SIZE` parameter is just required during installation/upgrades.

### 8.9.18 Scheduled Tasks May Freeze on RAC due to Undetected Deadlock

Please be aware that SimCorp currently has an open case on My Oracle Support (Bug 13869467 : ROW CACHE LOCK IN RAC WHILE CREATING TABLES), affecting the process of new installation of SimCorp Dimension on RAC databases.

The symptom is that the installation process ends in a freeze, requiring a restart of the database. The work-around is to ensure that JOB_QUEUE_PROCESSES is set to a relative low value (e.g. 30) for the duration of the SimCorp Dimension installation. The issue is not restricted to multimode RAC, but can also occur when one-node RAC is used. If multiple nodes are online JOB_QUEUE_PROCESSES should be set to 0 on all other instances in the cluster but the one, where it is set to 30. And then it must be ensured that the SimCorp Dimension installation only connects to the instance where the parameter is set to 30. Alternatively, all instances in the cluster but one should be closed down and JOB_QUEUE_PROCESSES set to 30 on the open instance. Note, this is only for the duration of the new installation and JOB_QUEUE_PROCESSES can be reset to default following the installation.

Although this issue has never been observed during upgrades, there is a very remote theoretical possibility the same situation could arise during a SimCorp Dimension upgrade. As it has not been possible to reproduce the issue during upgrade there should be no need to apply the above mentioned work-around during upgrades. Should you ever experience this issue during an upgrade SimCorp would of course very much appreciate to hear from you, so our position can be re-evaluated.

### 8.9.19 ORA-00600 [17273] during dml on DEX Table

Oracle has filed bug 11877623, which is confirmed to affect 11.2.0.3, 11.2.0.2 and 11.2.0.1

This ORA-600 error occurs in trigger execution and makes insert, update and delete statements on Data Extractor (DEX) tables fail, if the table has been renamed to a new name and then renamed back to the old name. There is no work-around, except for not renaming DEX tables back to their old name, e.g. do not rename dextab1 to dextab2 and then rename dextab2 to dextab1.

The bug has been fixed in 11.2.0.3 Patch 1 on Windows platforms and in the 11.2.0.3.2 Patch SetUpdate on other platforms.

### 8.9.20 ORA-00600 [kdifind:kcbget_24] on INLISTS or Other Temporary Tables

Please be aware of Oracle bug:13464002 - PREFETCH INVOLVING TEMP OBJECTS MAY RAISE ORA-600[KCBCHG1_12]/[KDIFIND:KCBGET_24. This bug has at very rare occasions been seen to make SimCorp Dimension error when inserting into global temporary tables, such as e.g. INLISTS_INT. Oracle writes in article ID 1466413.1 ORA-00600 [kdifind:kcbget_24] Errors, that the bug fix will be available in 11.2.0.4, expected during 2013. Interim patches are available for selected platforms. Please refer to My Oracle Support for more details.

### 8.9.21 Oracle Scheduler Step may Fail with ORA-00942

Oracle bug 16344871 has in very rare instances caused SimCorp Dimension upgrade to fail. The Oracle alert log reports one or more of the Scheduler steps failed with ORA-12012 “error on auto execute of job” and ORA-00942 “table or view does not exist”. The impact on the upgrade is very small and work-around is to re-start the upgrade program and the failing steps will successfully complete. Oracle has fixed the bug in 11.2.0.4, expected during 2013.

### 8.9.22 Executing Statistics Gathering following Upgrade may cause Performance Instability

When Oracle statistics are gathered using SIZE AUTO in METHOD_OPT Oracle automatically determines when to create column histograms based on the database workload information. If a column has never been used in a query Oracle won’t create a histogram for that column. Technically, Oracle keeps track of column usage by making an entry in sys.col_usage$ for the object id when the column is first used in a predicate.

The SimCorp Dimension upgrade creates the new version of a table by creating the ‘new’ table and copying data from the ‘old’ and then deleting the ‘old’ table. This implies that the ‘new’ table gets another object id, and from an Oracle perspective this means that the table (and thereby its columns) has never been referenced in SQL statements – there is no workload information on the columns yet. Therefore the upgrade process will for each table being changed, collect statistics using SIZE SKEWONLY in METHOD_OPT. This way the upgrade ensures adequate histograms on the SimCorp Dimension tables despite workload information not being available until the system has been used for a period of time.

In this respect it is also important to note, if statistics are gathered with SIZE AUTO following the upgrade, but before a proper SimCorp Dimension workload has been executed, you risk losing the histograms otherwise secured by the upgrade. The same risk applies to SimCorp Dimension tasks run very infrequent, where there is a likelihood the scheduled Oracle statistics job will run sooner than the first execution of the task following the upgrade.

From the application perspective, the symptom is certain functionality on its initial run, following the upgrade, performs inadequately. The problem rectifies itself at a later time, which coincides with the Oracle statistics job has been run in the period in-between.

For this reason it is also strongly recommended to refrain from gathering Oracle statistics immediately following a SimCorp Dimension upgrade, but allow the system time to obtain adequate workload information.

To establish when statistics were last gathered on a given table, as the data owner you can use:

```
SELECT TO_CHAR(LAST_ANALYZED, 'DD-MON-YY HH24:MI')
FROM USER_TABLES
WHERE TABLE_NAME ='<table name>';
```

If the time is later than the end time of the SimCorp Dimension upgrade, it indicates that statistics have been gathered on the table following the upgrade.

To establish if a given column has histogram, as the data owner:

```
SELECT HISTOGRAM
FROM USER_TAB_COL_STATISTICS
WHERE TABLE_NAME='<table name>' AND COLUMN_NAME='<column name>';
```

To view the histograms for given column, as the data owner:

```
SELECT ENDPOINT_NUMBER, ENDPOINT_VALUE
FROM USER_HISTOGRAMS
WHERE TABLE_NAME =  '<table name>' AND COLUMN_NAME='<column name>';
```

## 8.10 SAP Crystal Reports

### 8.10.1 Missing Compatibility in Crystal Reports

Crystal Report has, in a number of cases, been used as an interface tool for generating export files from SimCorp Dimension.

However, Crystal Reports does not guarantee format compatibility with older versions and this may – when upgrading (for instance from Crystal Reports 2008 to Crystal Reports 2011) – result in a situation where an export interface suddenly does not work any longer. Therefore, it is strongly recommended that you avoid using Crystal Reports for such purposes.

### 8.10.2 Crystal Reports on Citrix/Terminal Server

Crystal Reports have not been tested in the Citrix and Terminal Server environments by the vendor SAP. Therefore, troubleshooting issues in these environments is limited by the ability to reproduce the issue in a non-Citrix/Terminal Server environment such as a local desktop computer. Please see known issue 8.4.4 “SimCorp Dimension Freeze when printing from Citrix XenApp 6.5 at Windows Server 2008 R2”

### 8.10.3 Crystal Reports and Automatic Smart Linking

Recent versions of Crystal Reports have the option **Automatic Smart Linking** enabled as default. When having this option enabled on a database with a structure such as SimCorp Dimension, there is a risk that Crystal Reports will run considerably slower.

Disabling **Automatic Smart Linking** in Crystal Reports is done by clearing the **File/Options/Database/Advanced Options** check box within Crystal Reports.

### 8.10.4 Missing Crystal Reports Installation File on Windows Server 2008 R2

If SimCorp Dimension is running on Windows Server 2008 SP2, report execution may fail with varying error messages if a valid default printer has not been installed on the executing machine. The error text may include “invalid printer” or “missing SmAgentApi.dll”.

Please note that this also concerns reports not actually being printed.

# Index


**%**

%TEMP% folder ..... 99, 205

**.**

.NET ..... 70
.NET Framework ..... 37, 40

**3**

32-bit ..... 30, 36

**6**

64-bit ..... 36, 42, 159

**A**

Actuate e.Spreadsheet .....*See* BIRT Spreadsheet
ADG..... *See* Oracle Active Data Guard
Adobe Reader ..... 38
Analyses definitions, directory for..... 200
application server ..... 27, 41
APTServerXml ..... 44
APTServerXML ..... 44
architecture ..... 16
Australian CGT Calculator ..... 45

**B**

back office ..... 16
batch history..... 156
batch job.....68, 119, 155, 184
  failure ..... 138
  log ..... 156
  Validate Basic Constraints ..... 129
batch job group .....155, 156, 173, 179
  command line parameters ..... 179
  not responding ..... 229
  starting from scheduler ..... 167
batch job groups
  status ..... 142
batch jobs ..... 16, 27, 34, 65, 113, 126, 128, 136, 138, 139
  how to start ..... 155
  status ..... 141
  Windows resources ..... 159
batch log
  codes ..... 185
batch server..... 217
Batch user..... 155
BIRT Spreadsheet ..... 45
Bloomberg
  communication server ..... 228
  data feed ..... 48
  Open Bloomberg Terminal ..... 48

**C**

caching ..... 30
CasPol.exe ..... 72, 73, 74, 75, 230
checkdotnetsettings.exe ..... 72, 74
Citrix ..... 16, 27, 32, 35, 48, 117, 174, 227, 242
  Bloomberg license invalidation ..... 48
Citrix Presentation Server ..... *See* Citrix XenApp
Citrix XenApp ..... 32
Cleanup ..... 128
cnf.ini ..... 84, 87, 90
Communication Server ..... 16, 98
Communication Server folders ..... 229
Crystal Reports..... 38

**D**

Data Extractor ..... 103
data import ..... 16
database
  overview..... 20
Database
  OS authentication ..... 137, 149
  Privileges ..... 211
  schemas ..... 103, 211
Deleting installations ..... 126
documentation ..... 14

**E**

EDA..... 80
Elvin Client Library ..... 48
Elvin Message Router..... 48
e-mails..... 34, 65
error level..... 168
exit code..... *See* error level

**F**

File Permissions..... 206
file server ..... 16, 27, 139, 200, 229, 231
  crash..... 229
FIX.NET Server..... 45, 48
  SQL Server database ..... 27
folder
  %TEMP% ..... 99, 205

AddOns ..... 201
Bin .....111, 140, 154, 166, 201
BIN ..... 206
Comsrv ..... 202
COMSRV ..... 206
Data ..... 31, 84, 202
DATA ..... 206
DevIML ..... 202
DOC ..... 206
Dump ..... 132, 177, 178
IML ..... 206
IMS XMLSerialisationFactory ..... 205
Log .....100, 131, 156, 158, 208
LOG ..... 206
MEDIATOR ..... 207
PATCHES ..... 207
Prog ..... 89
PROG ..... 206
Protected ..... 202
PROTECTED ..... 207
RConnect ..... 207
RConnect\Outgoing ..... 206
redirection of 42, 87, 127, 132, 188, 190, 191, 193, 195, 200, 201, 202, 204
referencing in Reference Files ..... 131
REP ..... 206, 207
STDFILT ..... 206
STDIML ..... 206
STDREP ..... 206
Tmp ..... 132
TMP ..... 206
Transport ..... 204
TRANSPORT ..... 207
Upgrade ..... 205, 207
Util ..... 205
UTIL ..... 207
folder structure ..... 229, 236
ADR ..... 239
ANSI only ..... 31
FullTrust ..... 71, 73

**H**

hardware
application servers ..... 39
database server ..... 42
file server ..... 41
FIX.NET Server ..... 45
Order Manager client ..... 47
Order Manager server ..... 47
SimCorp Dimension client ..... 36
Help System ..... 47

**I**

IMS ..... *See* investment management system
Instant Client ..... *See* Oracle Call Interface
Internet Explorer ..... 38
investment management system ..... 16
ISO 17799 ..... 137

**J**

Java Runtime Environment ..... 44, 45, 63
JRE ..... *See* Java Runtime Environment, *See* Java Runtime Environment

**L**

local area network ..... 16
local installation ..... 16
Local time ..... 105

**M**

Mantara ..... 48
MAPI ..... 66
mapi32.dll ..... 66
Memory Management ..... 224
Message and User Control Server ..... 138
Message and User Control System ..... 16, 27
Microsoft Data Access Components ..... 46
Microsoft Terminal Services ..... 16
Microsoft XML Core Services ..... 46
modular system ..... 16
Monitoring ..... 98, 134, 139, 140, 141, 224
MSXML ..... *See* Microsoft XML Core Services
MUCS .... See Message and User Control System
mucs.exe ..... 31

**N**

Network ..... 35

**O**

OCI ..... *See* Oracle Call Interface
ODAC
Oracle Services for Microsoft Transaction Server Components ..... 48
Olson database ..... *See* tz database
Olson name standard ..... 106
OM ..... *See* Order Manager
OM³ ..... *See* Order Manager
On-line Support ..... 113
operating systems
supported ..... 27
Oracle ..... 16, 63, 112
Active Data Guard ..... 172
Enterprise Edition ..... 16, 43
Standard Edition ..... 16, 43
Oracle Call Interface ..... 37, 112
Oracle RDBMS ..... *See* Oracle

Order Manager ..... 27, 47

**P**

Patching ..... 120
Portal ..... 19
portfolio calculations ..... 16
Printer ..... 35
Program Files ..... 203

**Q**

quota ..... 105

**R**

Reference files ..... 131
Report Book Manager ..... 49
Reuters SFC API ..... 38
root folder ..... 200

**S**

SAP Crystal Reports 2011 ..... 113
scd.exe ..... 31
SCDDiff ..... 63
SCMeta ..... 144
server session ..... 141
Servers ..... 155
Service Requests ..... 21
Services ..... 163, 175, 223
SMTP ..... 66
Software versions ..... 44
srvstat.exe ..... 31
standby database ..... 172
Start-up parameters ..... 173, 181
STP ..... 221
System Administrator's Manual
  main structure ..... 11
System logs ..... 132

**T**

Task Manager ..... *See* Windows Task Manager
Time stamp ..... 107
tz database ..... 64
TZ4Net Library ..... 64

**U**

Unicode ..... 31, 77, 129
  AL32UTF8 character set ..... 77
  conversion to ..... 78
  database ..... 77
  native file support ..... 31
  support module ..... 31, 77
  XpressInstruments restrictions ..... 31, 32
UNIX ..... 27, 41, 42
Upgrade ..... 115
URL protocol ..... 90
user ..... 155
user type ..... 155

**V**

virtualisation
  desktop virtualisation ..... 16
VMware ..... 33
  ESX Server ..... 33, 34
  vCenter Server ..... 34

**W**

WebSphere MQ ..... 228
WebSphere MQ Client for Windows ..... 38
Windows ..... 16, 27, 32, 42, 49, 229
  %TEMP% folder ..... 99, 205
  caching ..... 30
  configuration ..... 67
  Date and Time Properties ..... 106
  derive time zone from ..... 63
  error codes ..... 184
  memory management ..... 224
  printer support ..... 35
  Resources ..... 159
  system errors ..... 224
Windows 7 ..... 231
Windows Server 2003 ..... 223, 230, 237
Windows Server 2008 ..... 74, 223, 231
Windows Task Manager ..... 30, 141, 210, 224
Windows Terminal Server ..... 27
Windows Terminal Server Edition ..... 32
Windows Vista ..... 231
WinHlp32.exe ..... 38
Workspace ..... 68

**X**

XenApp ..... *See* Citrix XenApp
XpressInstruments ..... 31, 64

**Z**

zoneinfo database ..... *See* tz database

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